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FM 60-10

DEPARTMENT OF THE ARMY FIELD MANUAL

AMPHIBIOUS OPERATIONS REGIMENT IN ASSAULT LANDINGS

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DEPARTMENT OF THE ARMY FIELD MANUAL
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AMPHIBIOUS OPERATIONS

REGIMENT IN

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DEPARTMENT OF THE ARMY

JANUARY 1952

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CHAPTER 1

GENERAL

Section I. INTRODUCTION

1. PURPOSE AND SCOPE

This manual is a guide for the regimental combat team (RCT) in planning, training for, and executing an amphibious operation. It includes additional information on higher headquarters and other forces involved. It describes the responsibilities of commanders and staff officers of the RCT and the need for coordinated planning and the establishment of liaison with parallel commands of the Navy and Air Force. It covers organization, tactical, and administrative planning, embarkation and voyage, ship-to-shore movement, naval gunfire and air support, the role of supporting arms and services, regimental shore party, signal communication, special operations, and amphibious training.

2. AMPHIBIOUS OPERATIONS

a. An amphibious operation is a landing made from ships or craft to achieve an objective on land, in which special techniques and equipment are used in debarking on a shore. The forces involved are dependent primarily upon waterborne means for transport to the objective area and for initial tactical and logistical support.

b. An amphibious operation normally includes the preparation of the objective for the landing and the operations of the forces involved in overwater movements, assault, and support. It becomes a joint amphibious operation when the assigned forces are composed of significant elements of more than one of the Armed Services.

c. An amphibious operation usually involves—

- (1) Preparing plans and training attack force units for the particular operation.
- (2) Moving forces to the objective; protecting and supporting them by naval and air operations.

- (3) Preparing the objective for the landing.
- (4) Landing troops, equipment, and supplies on a beach and seizure of the objective.
- (5) Supporting the landing and operations ashore by naval gunfire and air bombardment.
- (6) Landing and the build-up of additional supplies, equipment, and troops as required for logistical support of the landing and further operations.

d. The outstanding characteristic of amphibious operations is shock at the point of contact. Shock is obtained by concentrating a superior force and striking in overwhelming strength against one or more selected points in the hostile defensive system. Amphibious operations, being offensive in character, give the initiative to the attacker. Within the limits of higher authority and the supporting ability of naval and air forces, the attacker can choose his objectives and his lines of approach. The mobility of seaborne forces assists him in obtaining tactical surprise. Floating reserves allow him to rapidly develop his successes ashore.

e. The outstanding problem of the landing attack is the need to build up on shore in a short time the maximum coordinated offensive strength needed to establish a beachhead. Additional special problems of amphibious operations are these:

- (1) Limitations on shipping may adversely affect the initial deployment for assault and the rate of build-up of forces and supplies.
- (2) Troops will normally land on and fight over unfamiliar terrain.
- (3) Assault forces are usually vulnerable to all types of enemy fire until they are firmly established ashore.
- (4) Supply ashore is initially limited and the loss of ships may deny the forces ashore critical items or quantities of resupply.
- (5) Vulnerability en route to the objective.

3. TYPES OF MOVEMENT

According to the type of movement, amphibious operations are classified as either ship-to-shore, shore-to-shore, or a combination of both.

a. Ship-to-shore movement requires the transfer of troops, equipment, and supplies from transports to the beach in smaller landing craft or landing vehicles, with the exception of a portion of troops, equipment, and supplies that land directly on the beach from landing ships. Because of the long range involved, this operation requires initial transportation in seagoing vessels.

b. Shore-to-shore movement is the movement of troops, equip-

ment, and supplies directly from the embarkation area to the beach without transfer at sea. Because of the short distance involved, this type of operation is normally made mostly by landing craft and only a very few landing ships.

c. Most amphibious operations are a *combination of both* types of movement because of the various types of landing ships and craft employed.

d. Special operations on *navigable rivers and lakes* may also call for the use of amphibious shore-to-shore techniques. These operations may or may not have naval support.

- (1) River crossings involving wide or swift rivers or other special conditions may require such techniques.
- (2) A land campaign paralleling a coastal area or involving the use of navigable waters in the interior of a large land mass may use such shore-to-shore techniques as apply to transportation of troops, equipment, and supplies. This will assist in achieving tactical mobility for a series of penetrations and envelopments to accomplish the destruction of less mobile enemy forces.

4. PHASES OF AMPHIBIOUS OPERATIONS

Amphibious operations are divided into four general phases which, although well defined, may overlap in time of execution. The phases are—

a. *Preparatory Phase.*

- (1) This phase begins with the initial conception of the operation and ends with the completion of actual embarkation of the amphibious forces, although softening-up action may continue until the actual assault begins. It includes all planning, training, rehearsals, mounting, embarkation, and such softening-up actions as may be taken in connection with the operation.
- (2) The interest of all three services is equal during this phase. The authority constituting a joint force will provide for the control or coordination of this phase when no joint force commander has been designated to control the entire operation.

b. *Movement Phase.*

- (1) This phase begins with the completion of embarkation of the amphibious forces and ends with the beginning of the assault as defined below.
- (2) The Navy has dominant interest during this phase, and control should be exercised by or through the senior naval commander.

c. Assault Phase.

- (1) This phase begins when the Naval and Air Force components of the joint force are in a position to support the Army assault forces in the execution of the assault substantially as planned, and ends with the establishment of the force beachhead. Control of landing forces during this phase is exercised by or through the senior landing force commander, and particular attention must be given to the provision of tactical communications nets and decentralized means for direct support of landing force elements by naval gunfire and tactical aircraft.
- (2) Each action of the support services must be planned and executed to facilitate the assault. The success of the assault is basic to the success of subsequent operations ashore in achieving the objective for which the operation was undertaken.

d. Final Phase.

- (1) This phase of the joint amphibious operation begins with the end of the assault phase. It terminates when the normal logistical services of the Army and Air Force are established ashore. This phase includes seizure of the objective, unless it is included within the beachhead, and logistical operations involved in the consolidation of the objective. The amphibious operation ends upon announcement to that effect by the commander of the next higher joint force or by the Joint Chiefs of Staff.
- (2) Plans must be made by the Army, Navy, and Air Force for continuing mutual, tactical, and logistical support throughout this phase.
- (3) The Army has dominant interest during this phase, and control should be exercised by or through the senior army commander.

5. TYPES OF AMPHIBIOUS OPERATIONS

Amphibious operations are classified according to their mission as invasions, seizures, raids, demonstrations, and water-borne envelopments.

a. An invasion is a major landing assault with extensive forces and resources, and to initiate sustained combat operations within a land mass.

b. A seizure is an amphibious operation of limited objective to seize and hold a hostile island or limited land position for a specific purpose.

c. A raid is an assault operation involving small forces designed to land, accomplish a mission, and retire within a limited time. For details see paragraphs 335-337.

d. A demonstration is an operation intended only as an exhibition of force, implying attack, to deceive the enemy. When the demonstrat-

ing force is capable of landing in adequate strength to exploit a favorable situation, this operation is termed a *demonstration in force*. For details see paragraphs, 332-334.

e. A waterborne envelopment is the movement of landing forces and their equipment by water to attack the flanks or rear of an enemy position.

6. PATTERN OF AMPHIBIOUS OPERATION

Amphibious operations against defended shores generally conform to the following pattern:

a. Preparation.

- (1) Air and naval reconnaissance of the objective area including visual, sonic, photographic, and electronic reconnaissance. When possible, physical reconnaissance of the objective area is made.
- (2) Psychological warfare, sabotage, and subversive and espionage activities in the objective area.
- (3) Preliminary air and naval bombardment of the objective area where the assistance gained by such action will outweigh the tactical surprise lost.
- (4) Mine sweeping and underwater demolition operations in the landing area by naval forces supported by air and naval gunfire.
- (5) Naval gunfire and air bombardment of the landing area and objective immediately before the landing.
- (6) Seizure of outlying islands for use as logistic, air, or seaplane bases, radar warning stations, or position areas for supporting artillery where the assistance gained by such action will outweigh the tactical surprise lost.
- (7) Feints and demonstrations outside the designated landing area; for example, naval bombardment of naval defenses in another area to draw the enemy's attention from the planned assault area.
- (8) Long range naval air and surface striking force operations and long range air force striking force operations to secure and maintain control of the strategic area involved.

b. Assault.

- (1) Arrival of the joint amphibious task force in the landing area.
- (2) Intense pre-H-hour naval and air bombardment of the beaches, the landing area, and the objective.
- (3) Debarkation of assault troops from ships into landing craft and landing vehicles, their formation into waves, and their movement across the line of departure to the beach. Naval

and air bombardment continues on shore and inland targets until the last stage of this movement.

- (4) As the leading waves near the beach, naval gunfire lifts to inland and flanking targets; air units make final strafing runs on beach defenses; and supporting craft take over close support fire missions.
- (5) The assault waves land, breach beach obstacles, overrun beach defenses, and destroy local enemy forces and installations.
- (6) The assault platoons and companies quickly reorganize, repulse counterattacks, and seize initial objectives. Air and naval gunfire begin their close support when artillery forward observer parties and tactical air control parties land and establish communication. Initial equipment and supplies are landed and shore organization begins.
- (7) The landing area is expanded as rapidly as possible by the employment of troops landed in succeeding waves to exploit success where the advance is most rapid.
- (8) When the initial assault tasks are accomplished, the advance continues to secure the beach from enemy direct and ground-observed high angle fires. Shore organization continues.
- (9) Assault battalion beachhead lines are secured. Additional troops, equipment, and supplies are landed and organized counterattacks are repelled.

c. Consolidation.

- (1) Battalion beachheads are consolidated by regiment. Regimental objectives are seized to prevent light artillery fire from being placed on the beach. Regimental reserves are landed, and shore installations are consolidated.
- (2) Regimental beachheads are expanded by division. Division reserves are landed, and division objectives are seized.
- (3) Shore installations are consolidated by the division shore party as more supplies and equipment land.
- (4) If continuing land offensives follow, port and beach development begins. Additional reinforcements arrive, base installations and airfields are established, and the land offensive resembles a normal land campaign. Naval gunfire support continues throughout the consolidation and until the land offensive goes beyond the range of the guns. Air support continues, initially by long-range and carrier-based aircraft and later by planes operating from fields prepared in the objective area.

Section II. CHARACTERISTICS OF JOINT OPERATIONS

7. COMMAND

During all phases of the operation in which Army, Navy, and Air Force units operate together as a single force, unity of command is essential. An amphibious operation requires the establishment of naval and landing force chains of command to provide corresponding commanders at all levels of the naval and landing force organization.

8. COORDINATION AND PLANNING

Because of the detailed planning required for an amphibious operation, the joint force commander promptly establishes broad plans and policies for the operation. Planning headquarters of the joint force commander and those of the component forces are established close together. Corresponding commanders at all levels maintain close liaison to insure the accomplishment of the mission. Liaison officers are exchanged between the component forces.

9. RESPONSIBILITIES DURING THE MOVEMENT AND ASSAULT PHASE

Responsibilities and functions of the services during this phase are divided as follows:

a. Embarkation and Movement.

- (1) When oversea movement of joint forces is ordered, the *Army's responsibilities* during the embarkation and movement to the objective are to—
 - (a) Assemble troops, equipment, and supplies at designated ports of embarkation.
 - (b) Provide and operate ports of embarkation and to provide material-handling equipment for loading equipment and supplies.
 - (c) Load transports for transportation of personnel, equipment, and supplies.
 - (d) Man naval weapons on ships if requested, or set up and operate army weapons on vessels in which army troops are transported.
- (2) The *Navy's responsibilities* are to—
 - (a) Maintain sea lanes of supply.
 - (b) Provide and operate necessary vessels to transport personnel, equipment, and supplies.
 - (c) Assemble necessary vessels at designated ports of embarkation at specified times.
 - (d) Provide security of vessels at sea.
 - (e) Prescribe routes for overwater movement.

(3) The *Air Force's responsibilities* when bases are within range are to—

- (a) Assist in maintaining air superiority in the objective area and in sea lanes to be used.
- (b) Continue reconnaissance of the objective area.
- (c) Destroy selected targets in the objective area, including appropriate action to interdict movements into the area.

b. *Ship-to-shore Movement and Landing.*

(1) During the ship-to-shore movement and landing, the *Army's responsibilities* are to—

- (a) Debark into landing craft for the landing.
- (b) Debark from landing craft and begin operations ashore.
- (c) Remove obstacles which are not inundated.
- (d) Provide personnel for unloading equipment and supplies.
- (e) Establish and operate shore installations needed for the debarkation of personnel, equipment, and supplies.
- (f) Evacuate casualties to the beach and care for casualties on the beach.
- (g) Extend the beachhead until the mission is accomplished.

(2) The *Navy's responsibilities* are to—

- (a) Provide and operate landing ships and craft required for the landing operations.
- (b) Provide defense against sea-borne attack and air attack.
- (c) Land the assault forces according to the scheme of maneuver and to support the landing by gunfire and naval air action.
- (d) Remove underwater obstacles.
- (e) Assist the Army in unloading equipment and supplies and in the conduct of beach operations.
- (f) Organize and operate sea lanes of supply for the forces ashore.
- (g) Evacuate casualties to ships and aid in the care of casualties on the beach.

(3) The *Air Force's responsibilities* when bases are within range, and in joint action with the Navy, are to—

- (a) Interdict movements into the objective area.
- (b) Maintain air superiority in the objective area.
- (c) Neutralize the landing area immediately prior to and during the landing.
- (d) Provide close air support to ground units.
- (e) Continue reconnaissance in areas of interest.

CHAPTER 2

ORGANIZATION

Section I. INTRODUCTION

10. GENERAL

a. Amphibious operations may require the organization of a joint force. The theater commander operating directly under the Joint Chiefs of Staff has at his disposal the joint forces needed to conduct an amphibious operation. The theater commander may command the joint force or he may designate a joint force commander. The forces available to the joint force commander consist of a naval striking and covering force, a joint amphibious task force, and logistical support forces. Submarine forces and strategic air forces, when specifically directed, may support the operation.

b. A joint amphibious task force usually includes the—

- (1) Advance force.
- (2) Attack forces (1 or more).
- (3) Demonstration force.
- (4) Reserve force.
- (5) Carrier or tactical air force.
- (6) Administrative group.

c. All of the organizations listed in *b* above are naval except the attack forces.

11. ATTACK FORCE

a. An attack force (fig. 1) is an organization capable of conducting a landing, and includes a landing force, a naval component, and normally, an air component. The attack force commander is usually a naval officer.

- (1) The landing force consists of all ground combat and service troops required to accomplish the mission ashore; it normally includes a reinforced corps of three or less infantry divisions.
- (2) The Naval component in the attack force consists of all naval combat forces (excluding carrier aircraft), service units, and shore-based naval logistical organizations that are to accompany the movement for installation at the objective.

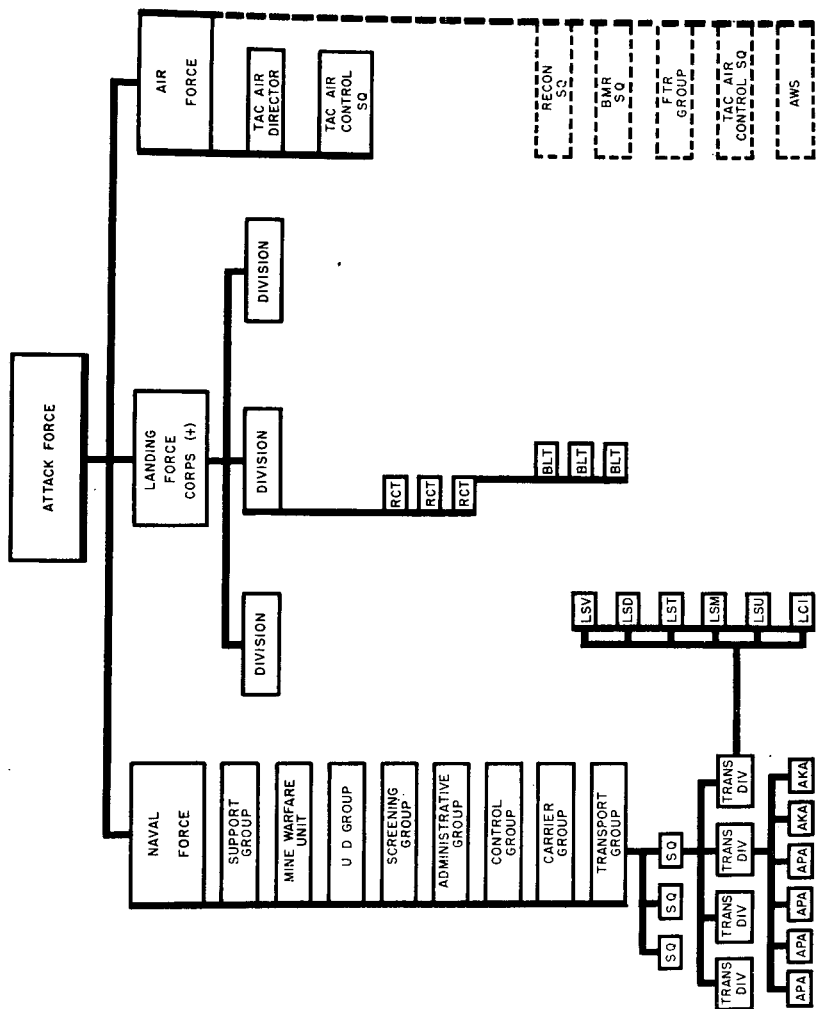


Figure 1. A typical attack force.

- (3) The air force component in the attack force normally consists of control agencies to control the aircraft supporting the attack force.

b. Both land-based and carrier-based aircraft operate under the control of the joint amphibious task force commander except when the attack force is operating separately or when control is assigned to the attack force commander. Tactical air control parties are furnished to the landing force for controlling close air support ashore.

Section II. LANDING FORCE

12. GENERAL

A landing force is a task element of an attack force. It consists of ground troops organized to execute an assault landing under circumstances that permit a single tactical commander for operations ashore. The landing force commander is responsible for the—

a. Formulation of the landing force scheme of maneuver and such alternate plans as are required.

b. Recommendations concerning the hour of landing and selection of landing beaches.

c. Conduct of operations ashore.

d. Requests for, and assistance in, the planning and coordinating of supporting fires. For further details concerning coordination, see paragraph 211b.

e. Initial defense of the objective.

13. COMPOSITION OF THE LANDING FORCE

a. The landing force includes units organized and grouped particularly for the amphibious attack and supplemented by special organizations required by the operation. The groups and special organizations are made up for the following functions:

- (1) Embarkation of troops, equipment, and supplies.
- (2) Debarkation and landing of troops.
- (3) Conduct of initial assault operations ashore.
- (4) Control of naval gunfire support.
- (5) Control of close air support.
- (6) Discharge of cargo from assault shipping, and landing and movement of matériel across the beaches.
- (7) Operation and tactical use of amphibious vehicles.

b. The reinforced division is the basic self-contained tactical organization within the landing force. It includes elements of all the arms and services required in the amphibious attack. The RCT is the major subdivision of the reinforced division. In an amphibious oper-

ation the RCT normally operates under division control but is capable of operating separately.

c. An amphibious operation requires that the landing force be organized for embarkation and for landing within the limitations imposed by the available lift.

14. ORGANIZATION OF THE LANDING FORCE FOR EMBARKATION

This organization is the temporary administrative grouping of forces for the overseas movement and is based on major tactical units such as the RCT. It includes the task organization for landing, plus the additional forces embarked for transportation, labor, or maximum dispersion of personnel and equipment.

a. *Embarkation Group.* The basic organization for embarkation is the embarkation group, which is subdivided into embarkation teams. The RCT's are the basis for the principal embarkation groups of the reinforced division. Besides the RCT, an embarkation group includes other units that are required to be embarked with the RCT because of tactical or logistical considerations. The embarkation group is normally carried in a transport division.

b. *Characteristics.* RCT embarkation groups are organized so that—

- (1) They can accomplish the tasks required by the scheme of maneuver and the alternate plans.
- (2) They are capable of being detached on an independent mission.
- (3) The detachment or loss of any group will not deprive the remainder of the force of a large part of any arms, service, or type of matériel.

c. *Composition.* A typical organization of an embarkation group follows:

- (1) Infantry regiment.
- (2) Detachment, field artillery battalion.
- (3) Engineer company.
- (4) Detachment, division signal company.
- (5) Platoon, collecting company, separate.
- (6) Regimental shore party.
- (7) Detachment, military police.
- (8) Tactical air-control parties.
- (9) Prisoner-of-war interrogating teams.
- (10) Bomb-disposal squads.
- (11) Detachment, quartermaster company.
- (12) Detachment, ordnance company.

(13) Naval gunfire liaison team (Navy).

(14) Shore fire control parties (Navy).

d. Embarkation Team. Each embarkation team includes the units embarked in a single vessel. Battalion landing teams are the basis for the principal embarkation teams of the embarkation group. The embarkation team also includes additional elements embarked for the movement only. For a typical embarkation team see FM 60-5.

15. ORGANIZATION OF THE LANDING FORCE FOR LANDING

This organization is the specific tactical grouping of forces for the assault. The landing organization does not include those units embarked only for transportation, labor, or dispersion.

a. The battalion landing team (BLT) is the basic task organization for landing, and it includes the normal battalion organization and units attached for the assault.

b. The RCT includes those elements required to begin its combat operations ashore. These elements include the assault BLT's; RCT reserve; shore party elements; artillery, naval gunfire, and air detachments; and signal, medical, and engineer units.

c. The reinforced division may be organized for landing into three RCT's, division artillery, division shore party, and division headquarters and special troops with reinforcing units.

16. AIRBORNE UNITS

a. When airborne elements take part in an amphibious operation, they are included in the organization of the landing force. These elements may be airborne units or air transported units.

b. The preparation for and execution of the airborne phase of an amphibious operation is accomplished according to airborne procedure. In assisting an assault landing, airborne forces may be assigned to—

- (1) Attack critical points on or behind coastal fortifications.
- (2) Block movement of enemy reserves.
- (3) Assist in securing objectives of an assault landing force.
- (4) Attack beach defenses in the rear.
- (5) Disrupt enemy communication and supply facilities.

Section III. NAVAL FORCE

17. GENERAL

a. The naval element of the attack force consists of task groups and units required for the transportation, protection, and support of the landing force. The following are typical groups and units:

- (1) Support group.

- (2) Mine warfare unit.
- (3) Underwater demolition (UD) group.
- (4) Screening group.
- (5) Administrative group.
- (6) Control group.
- (7) Transport group.

b. The organization of the naval element is flexible and will vary with the assigned mission. For example, carrier groups may be included in its composition if necessary.

18. SUPPORT GROUP

The support group consists of all ships and close support craft whose primary mission is to deliver shore bombardment and naval gunfire support for the landing force. The support group is subdivided into fire support units. The support group is not completely formed until the arrival of the attack force in the objective area. At this time, ships or units that have been a part of the advance force or screening force report and assume their assigned fire support unit designations and stations.

19. MINE WARFARE UNIT

The mine warfare unit consists of vessels assigned the tasks of mine sweeping and mine laying. It operates with both the advance force and the attack force. As part of the advance force, it may conduct mine sweeping operations in connection with the preliminary reconnaissance of the area. On D-day it comes directly under the attack force commander and continues with its assigned work in the attack force area. The unit devotes particular attention to the mine sweeping of transport areas, fire support areas, and boat lanes from the transport area to the 2-fathom (depth) line on the landing beaches.

20. UNDERWATER DEMOLITION GROUP

The underwater demolition group, which works from the 3-fathom line to the high water mark, is a task organization of underwater demolition teams whose mission is to reconnoiter landing beaches, remove natural and artificial obstacles, and mark channels or boat lanes through minefields. These teams usually operate with the advance force until the initial landing and then may be assigned to specific tasks with the naval beach party. When underwater obstacles are located and not destroyed, the group normally has the additional responsibility of providing wave guides for the assault landing craft.

21. SCREENING GROUP

The screening group consists of vessels assigned to provide security against subsurface, surface, and air attack during the overseas move-

ment and while in the objective area. Radar pickets are used by this group. On arrival in the objective area some vessels of this group may be assigned control duties relating to the ship-to-shore movement, or assigned fire support or covering missions.

22. ADMINISTRATIVE GROUP

The administrative group is established for the conduct of naval administrative matters related to the operation. It supervises—

a. Service and salvage, including refueling and repairing of landing craft, salvage or destruction of disabled boats, fire fighting, and rescue of personnel from disabled landing craft.

b. Hydrographic survey, including the survey of approaches and harbors and the laying of obstructions and marker buoys.

c. Installation of ponton barges and causeways.

d. Boat pools.

e. Port direction.

f. Mail.

g. Medical evacuation.

23. CONTROL GROUP

a. The control group consists of control personnel and those vessels and craft designated to control the ship-to-shore movement. The control group operates under the direction of the central control officer, a representative of the attack force commander, who is embarked in a central control vessel. Subordinate to the central control officer in the control system are transport squadron control officers. These officers are embarked in separate vessels and are responsible for the control of ship-to-shore movement of the landing craft within their squadrons. Transport division control officers are subordinate to the transport squadron control officers and are responsible for the ship-to-shore movement within their transport divisions.

b. Control officers in control vessels at all levels of command are accompanied by representatives of the landing force to maintain close liaison during the ship-to-shore movement. A representative of the reinforced division is with the transport squadron control officer, and a representative of the RCT is with the transport division control officer. For further details on the control group and boat organization, see paragraphs 166–187.

24. TRANSPORT GROUP

a. A transport group consists of attack transports (APA), attack cargo ships (AKA), and landing ships and craft as required to transport, land, and provide logistical support for a reinforced infantry division. A transport group normally consists of one transport squad-

ron (APA and AKA) with additional special vessels (LST, LSM, LSD, and LSV) as required. The transport squadron (TRANSRON) is normally organized into transport divisions (TRANSDIVS) each capable of embarking, transporting, and landing an embarkation group. A transport division normally includes four or five attack transports and two attack cargo ships.

b. An embarkation team is normally transported in a single attack transport when making the ship-to-shore movement in landing craft. However, when making the ship-to-shore movement in landing vehicles (LVT's), four LST's are normally used in transporting the assault elements of the embarkation team.

c. Besides the APA's and AKA's, the transport group consists of ocean-going landing ships organized into tractor flotillas consisting of squadrons of LST's, LSM's, and LSU's. These tractor units, because of slower speeds, move to the objective area independently except for protective units. After arrival at the objective area, they return to direct operational control of the transport group commander.

Section IV. AIR SUPPORT

25. GENERAL

Air support for an amphibious operation is normally under the direct operational control of the joint amphibious task force commander. Aircraft in support of an attack force are controlled by the tactical air director through the tactical air control squadron embarked on the attack force commander's flagship. When operating separately, the attack force has air units attached to provide protection en route to the objective area and to provide close air support ashore. To control close support aircraft ashore, tactical air control parties are attached to landing force elements.

26. TYPES OF AIR SUPPORT

The two types of offensive air support normally used in an amphibious operation are general air support and close air support.

a. *General air support* includes those operations not closely related to front-line troops and therefore requiring a minimum of coordination with the landing force. These operations usually take place before D-day. After D-day, the targets are well beyond the front lines and are not immediate objectives of the landing force.

b. *Close air support* includes those operations requiring detailed integration of each mission with the fire and movement of the ground forces. These operations are usually attacks against targets immediately opposing the advance of front-line troops, air reconnaissance missions, and air supply missions.

c. Reconnaissance air support and transport air support may also be employed in connection with an amphibious operation.

27. ORGANIZATION

Tactical air control parties consist of an officer and communication personnel. They are assigned to the reinforced division on the basis of the division's requirements.

Section V. ORGANIZATION OF REGIMENTAL COMBAT TEAM

28. FACTORS DETERMINING ORGANIZATION OF THE RCT

a. The factors that determine the attachments to an infantry regiment to form an RCT include—

- (1) RCT mission.
- (2) Enemy situation.
- (3) Weather, terrain, and hydrographic conditions in the landing area.
- (4) Shipping available.
- (5) Attachments available.

b. During the initial phases of the landing, the RCT commander is not able to influence the action ashore. Depending on his mission, he determines the organization required for the specific task to be accomplished. He studies the recommendations of the battalion commanders, and makes sure that each BLT is a balanced fighting force. To operate successfully during this critical period, each BLT is organized as a self-supporting unit.

c. The enemy situation invariably shows the need for certain attachments. The types of fortification and beach defense guns, and the presence of enemy armor, mines, and barbed wire indicate the attachments to be requested by the RCT commander.

d. Weather, terrain, and hydrographic conditions in the sector may make additional attachments necessary. Underwater obstructions such as reefs may indicate a requirement for amphibious tractors to take the troops ashore.

e. The RCT has to be organized to fit the available shipping. This usually requires that all units eliminate the personnel and equipment not initially needed in the objective area.

f. After the RCT commander determines the attachments necessary to accomplish his mission, he submits a request for these attachments to his division commander. In the event these attachments are unavailable, the RCT commander may find it necessary to train a portion of his own troops to perform the required special tasks.

29. TYPICAL RCT

a. The organization of the RCT is flexible and fits the specific task required. A typical RCT includes—

- (1) An infantry regiment.
- (2) A detachment from a field artillery battalion.
- (3) An engineer company.
- (4) A regimental shore party.
- (5) Tactical air control parties.
- (6) Medical units.
- (7) A naval gunfire team.
- (8) Three shore fire control parties (Navy).

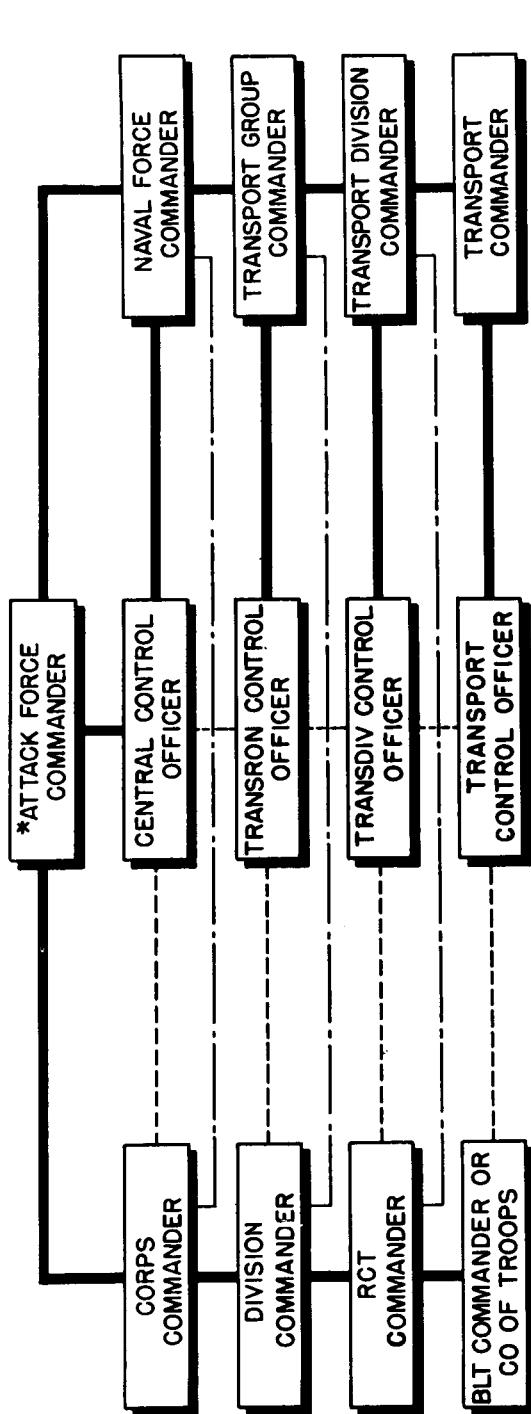
b. Such additional units as amphibious tanks, amphibious tractors, amphibious trucks, antiaircraft artillery, and service elements may be included.

30. COMMAND RELATIONSHIP AND LIAISON

(fig. 2)

a. The transport division commander exercises no control over the RCT before embarkation. He assumes control when embarkation begins, and continues in control during the movement to the objective and during the ship-to-shore movement. The transport division commander exercises control of the RCT units embarked in his ships through the RCT commander on matters incidental to movement and debarkation. The RCT commander notifies the transport division commander, the division commander, and the commanding officer of the ship when he closes his command post aboard ship.

b. The senior troop commander embarked in each vessel is usually designated as CO (Commanding Officer) of troops. He commands all troop units embarked in the transport in matters relating to quartering, messing, and guard. The CO of troops usually designates several officers to handle these administrative details, and these officers coordinate with their opposite numbers on the staff of the commanding officer of the ship. Upon leaving the ship, the CO of troops advises the Commanding Officer of the ship of the troop officer designated to assume responsibility as CO of troops in his absence.



* THE ATTACK FORCE MAY BE A UNIFIED FORCE OR A JOINT TASK FORCE. IF A UNIFIED FORCE, THE COMMANDER COMMANDS THE FORCE THROUGH HIS ARMY, NAVY, AND AIR FORCE COMMANDERS. IF A JOINT TASK FORCE THE COMMANDER EXERCISES OPERATIONAL CONTROL OVER THE ENTIRE FORCE THROUGH THE SERVICE COMPONENT COMMANDERS AND DIRECT COMMAND OF HIS OWN SERVICE ELEMENT.

NOTE: 1. THIS CHART COVERS ONLY A PART OF THE OVERALL ORGANIZATION. AIR FORCE AND COMBATANT ELEMENTS OF THE NAVY ARE NOT INDICATED.

2. AN ATTACK FORCE COULD BE OF ANY SIZE. IF ARMY FORCES ARE LESS THAN A CORPS, THEN CORRESPONDING CHANGES ARE REQUIRED IN THE CHART.

Figure 2. Corresponding chains of command in the attack force.

CHAPTER 3

TACTICAL PLANNING

Section I. INTRODUCTION

31. NATURE OF PLANS

a. Planning steps in an amphibious operation differ widely from those followed in normal land warfare. Because of the complex nature of the operation, the necessity for decentralized control in the early steps of the operation, and participation by different services, detailed planning and coordination at all levels are mandatory.

b. The amphibious operation requires joint planning at all levels among all services participating in the operation, beginning at its inception and continuing to its conclusion. In addition to joint planning, concurrent planning at all levels is also mandatory in order to facilitate coordination among participating services. In all cases plans must remain flexible in order to provide for changes in the enemy situation or changes in the enemy's capabilities. At the conclusion of all phases of planning, detailed instructions are issued in appropriate annexes to the operation order in regard to provisions for naval gunfire support, air support, smoke support, ship-to-shore movement, priority of landing, task organization, command and control objectives, logistics and communications.

c. Dispersion of subordinate units and unusual communications problems during the early stages of the landing and initial assault of objectives make it mandatory that the tactical plans for each BLT be coordinated by the RCT commander before embarkation. Coordination between elements of the landing force and naval elements is mandatory to insure that landing craft allocation and types are adequate, and that stowage plans are feasible to meet special requirements of elements of the landing force. Coordination between tactical planning and shore party planning is mandatory to insure that required special equipment is available for use on the beach by supporting units after landing. Joint staffs prepare plans for the integration of naval gunfire support, air support, and smoke support with landing force schemes of maneuver ashore.

d. For security purposes planning personnel are given only those portions of the over-all concept of the operation necessary for them to evolve their portion of the over-all operation plan.

32. ORGANIZATION FOR PLANNING

When a division is to take part in an amphibious operation, the division commander establishes a planning headquarters. RCT planning staffs are assembled at division headquarters to plan concurrently with the representatives of participating units. When the same units conduct amphibious operations repeatedly, better cooperation and coordination is achieved by assigning the same units to work with the same RCT staff in each operation.

33. COORDINATION OF PLANNING

Teamwork is gained by coordination between the RCT staff and the staffs of division, naval, and air units. The staffs achieve coordination and cooperation by conferences and by personal contacts. Decisions are reached on a basis of mutual understanding and free exchange of the information needed for planning. Liaison between the various participating units is established when planning begins and is maintained until the completion of the operation.

34. TIME ELEMENT FOR PLANNING

Tactical planning is begun as soon as possible after the receipt of a directive or warning order. Under favorable conditions, the overall period required for a division to plan and embark for an operation may be reduced to 60 days. The use of unusually large forces or the existence of factors tending to delay the assembly of the landing force may prolong this period. The time the RCT and BLT need to develop tactical plans depends on the training, experience, and efficiency of their staffs. Division plans and orders are given to the RCT in time to permit the completion of detailed BLT plans and orders before embarkation.

35. SEQUENCE OF PLANNING

The major elements of the RCT tactical plan are developed in the inverse order of their execution. Based on his assigned mission, a study of the weather, terrain, hydrography, and the enemy situation, the RCT commander determines his scheme of maneuver ashore. He next determines the attachments and exterior supporting fires he will need to carry out his scheme of maneuver. Next, the loading and landing plans are developed to land all RCT elements in a sequence that will carry out the scheme of maneuver ashore. However, the loading and landing plans are affected to some extent by the availability of landing ships, craft, and vehicles, therefore close joint and concurrent planning are mandatory in order that the landing plans of the RCT commander may be executed.

36. ALTERNATE PLANS

a. Several operation plans are prepared to provide for changes in the enemy situation, loss of ships and equipment, or variations in meteorological and hydrographic conditions. An alternate plan may consist of a modification of the basic plan to land the same assault units in the same relative order, but on a different beach. By having this plan already prepared, an easier adjustment to the actual conditions is made, and the execution of the entire operation is simplified. Alternate plans to be used on signal are prepared before embarkation and are made available to unit commanders. In this way, flexibility is achieved to meet foreseen developments in the assault.

b. The preparation of too many alternate plans is undesirable because of the burden it places upon assault element commanders in briefing troops and preparing for the multiple tasks.

Section II. INTELLIGENCE PLANNING

37. GENERAL

a. In amphibious operations, emphasis is placed on the production and use of certain items of intelligence. Many of these items are not required in other types of operations and often are obtained by special means. The commanding officer of a regiment operating as a part of a larger force normally has no choice as to his time and place of landing, but he needs the intelligence on which to base his loading and landing plans, and his scheme of maneuver ashore.

b. The production of intelligence begins far enough ahead of the operation to provide all lower staff sections and units with the intelligence they need for planning. The intelligence initially available usually accompanies the directive for the operation. Most of the intelligence produced later is disseminated to regiment by the division headquarters.

38. INTELLIGENCE REQUIREMENTS

Detailed intelligence concerning the following items is needed for the planning and execution of an amphibious operation:

a. Enemy. Composition of enemy forces in the objective area (ground, naval, and air); unit identification, strength, equipment, location, organization, disposition, mobility, history, and command personalities; location, nature, and extent of beach and inland defenses.

b. Hydrography. Surf and swell conditions, tides, currents, depths of water, water temperature, and nature of bottom, reefs, rocks and shoals.

c. Meteorology. Temperature, precipitation, wind, visibility, fre-

quency and nature of storms, flying conditions, and natural phenomena.

d. Beaches. Exact location, length, width, gradient, physical consistency, exits, and underwater and beach obstacles.

e. Terrain. Configuration of the shoreline, relief, compartmentation, vegetation, critical terrain features, observation and fields of fire, obstacles (natural and artificial), cover and concealment, avenues of approach, landmarks for the identification of the landing beaches from the sea, drop zones for air-borne troops, emergency landing sites for aircraft, and areas suitable for command post sites, storage, vehicle parks, and artillery.

f. Ports. Location in relation to the landing beaches, hydrography, berthing facilities, storage, and port facilities to include piers and jetties for unloading supplies.

g. Local Population. Density, religion, health, politics, economy, attitude, and suitability for use as militia or guerilla forces.

h. Communication and Transportation. Characteristics, construction, capacities, and condition of telephone, telegraph, radio, roads, railroads, airfields, rivers, and canals.

i. Civic Development. Location, type of construction, and characteristics of towns, villages, farm houses, and other buildings.

j. Miscellaneous. Water supply, public utilities, sanitation, dangerous fauna or flora, natural resources of military value, and local construction materials.

39. INFORMATION AND INTELLIGENCE

Information and intelligence for use in the planning and execution of an amphibious operation may be obtained from the following—

a. Sources.

- (1) Former residents of the objective area.
- (2) Prisoners of war.
- (3) Captured documents.
- (4) Captured matériel.
- (5) Aerial photographs.
- (6) Residents of adjacent areas.

b. Agencies.

- (1) Travel, student, and scientific associations.
- (2) U. S. Coast and Geodetic Survey, and U. S. Hydrographic Office.
- (3) Office of the Assistant Chief of Staff, G-2, Department of the Army.
- (4) Office of Naval Intelligence, Department of the Navy.
- (5) Directorate of Intelligence, Department of the Air Force.
- (6) Higher headquarters including theater headquarters.

c. Files and Special Studies.

- (1) Reports of visual air reconnaissance and photography.
- (2) Reports of submarine reconnaissance.
- (3) Reports of underwater demolition team (UDT) reconnaissance.
- (4) Advance force visual reconnaissance.
- (5) Reports of amphibious scout reconnaissance.
- (6) Army, Navy, and Air Force intelligence reports.
- (7) Joint Army-Navy-Air intelligence studies.
- (8) Strategic engineering studies.
- (9) Coastal pilot sailing instructions.
- (10) Theater terrain studies, guides, and handbooks.
- (11) Files of professional societies, universities, and libraries, and all other available sources of this type.
- (12) Files of business concerns operating in the objective area.

40. PLANNING PHASE INTELLIGENCE AGENCIES

a. The agencies organic to a regiment operating as a part of a larger unit are seldom able to produce the intelligence required for an amphibious operation. Emphasis is placed on the fact that at regimental level the chief source of intelligence data is the division, and the regiment is almost completely dependent upon the division for information and estimates upon which to base landing plans and schemes of maneuver. The following higher agencies provide the bulk of the intelligence used in the planning phase of an operation:

- (1) Office of the Assistant Chief of Staff, G-2, Department of the Army.
- (2) Office of Naval Intelligence, Department of the Navy.
- (3) Directorate of Intelligence, Department of the Air Force.
- (4) U. S. Coast and Geodetic Survey.
- (5) Higher headquarters, including theater headquarters.

b. After the landing, information is obtained and intelligence is produced and used as in any other land operation.

41. DEVELOPMENT OF INTELLIGENCE

a. When the initial directive is received, an intelligence estimate is prepared. This estimate is based on a study of available information and intelligence.

b. The requirements for additional intelligence are then determined by a comparison of the data contained in the estimate with the total intelligence needed for the operation. These additional intelligence requirements are the essential elements of information (EEI) and are announced by the commander.

c. Using the intelligence requirements (EEI) as a guide, a collection plan is prepared providing for continuous and systematic search for the needed information. Requests for information and intelligence are submitted to division headquarters.

d. As information is received, it is recorded, evaluated, and interpreted. New intelligence may require a revision of the EEI. These new intelligence requirements may modify the collection plan. New requests for additional information are submitted to division headquarters as required.

e. For details of intelligence planning see FM 30-5.

42. DISSEMINATION OF INTELLIGENCE

Intelligence must be disseminated in time to be of use, and by appropriate means—personal contact, messenger, or conference. For documents and reports used in disseminating intelligence see FM 30-5.

43. SECURITY

a. The ultimate success of an amphibious operation depends greatly on attaining surprise. Surprise is gained only by concealing the true plans and intentions from the enemy. Required security measures include the following:

- (1) *Controlled Dissemination.* Intelligence required by a headquarters is never withheld, but unnecessary dissemination is prevented.
- (2) *Code Names.* During planning, amphibious operations are given code names. The name used has no relation in itself to anything connected with the operation. The code name of the operation and actual geographic names of the objective area are never included in the same document. Outstanding terrain features may also be given code names.
- (3) *Secret Planning Room.* All rooms designated for planning work are kept under guard at all times. No documents, maps, charts, or material of any kind used in planning are removed from the room; only authorized personnel are permitted to enter.
- (4) *Precautionary Measures.* Rigid censorship regulations are established and strictly enforced. All press releases are supervised including photographs and material for broadcast. Counterreconnaissance and counterespionage measures are taken, and communication security is enforced.

b. Personnel already briefed on the plan are not permitted to accompany amphibious patrols or to fly over enemy territory. Personnel sent on amphibious reconnaissance patrols are given only the information required for the accomplishment of their mission.

c. In preparing for an amphibious operation it is assumed that the enemy will obtain some information indicating that an operation is being mounted. Steps may be taken to deceive the enemy concerning the true intentions and plans. The intelligence officer submits recommendations and assists in planning tactical deception measures, to include demonstrations, ruses and feints, and radio traffic deception.

d. Tactical deception measures are coordinated by higher headquarters to eliminate duplication and prevent compromise of the operation.

44. THE INTELLIGENCE ANNEX

The intelligence annex of an amphibious operation order follows the form prescribed in FM 30-5. To enable lower units to plan concurrently with higher headquarters, the necessary parts of the intelligence annex are distributed as soon as prepared. Besides the information and instructions included in the annex for a normal land operation, the following may be attached as appendixes:

- a.* Tide and current tables.
- b.* Sunrise and sunset tables.
- c.* Moonrise and moonset tables.
- d.* Terrain and beach studies.
- e.* Amphibious beach sketches.

45. SUBSEQUENT INTELLIGENCE PROCEDURES

a. Radio silence is normally in effect when the landing force is embarked and under way. Visual signal, air drop, helicopter, ship's boats, and courier ship are necessary at this time for the transmission of messages between ships. Intelligence and information received by the attack force commander while en route to the objective area are disseminated as rapidly as possible to all units of the force.

b. After the attack force is under way, personnel are briefed on essential information:

- (1) Tactical plan.
- (2) Location and character of the landing beaches.
- (3) Enemy situation and defenses.
- (4) Weather.
- (5) Terrain.
- (6) Initial reconnaissance missions.

c. When the troops are to be aboard ship for only one or two days before landing, much of this briefing must be accomplished before embarkation, with security measures imposed to prevent leaks in information.

d. The final distribution of maps, charts, and aerial photographs needed for the operation is made after the attack force is under way.

e. After contact is established with the enemy, the procedures for the production and use of intelligence are the same as in normal ground combat.

46. OPERATIONAL AIDS

The following operational aids are essential for planning an amphibious operation and briefing the participating troops:

a. Enough *maps and charts* to meet the needs of both the planning staffs and the participating troops. The maps and charts used vary in scale according to the size of the unit concerned. Small units require large scale maps.

b. *Scale models and relief maps* of selected landing beaches and beachhead terrain. These are especially useful in briefing assault troops. For best results, models and relief maps should be three-dimensional, gridded, and 1:5000 in scale with at least a two to one exaggeration in vertical scale. A minimum of one model for each planning staff and ship is required.

c. *Shoreline sketches and photos* that are distributed to all platoon leaders and boat commanders for orientation on their assigned beaches.

d. *Beach studies* that supplement information obtained from other sources.

e. *Aerial and still photographs.*

- (1) Aerial photographs provide greater assistance in planning an amphibious operation than any other aid. In some instances, aerial photographs have provided all of the information available. They provide current and accurate information. Their greatest value results from a comparative analysis of a series of pictures taken over a period of time under varying weather conditions. Types of aerial prints needed for study and distribution include vertical and oblique views, annotated mosaics, stereo-pairs, color transparencies, and motion pictures. For detailed information concerning the capabilities and use of aerial photographs, see FM 30-5, TM 5-240, and TM 5-246.
- (2) Still photographs give an immediate impression of the characteristics of the beaches, terrain, and offshore conditions. They are annotated with the exact location and time of exposure.

Section III. MAIN AND SUBSIDIARY LANDINGS

47. GENERAL

The RCT may take part in a main landing, a secondary landing, or a demonstration.

48. MAIN LANDING

The main landing is a landing on which the success of the tactical plan depends. It receives first consideration in the assignment of troops, ships, and aircraft, and is provided with the forces needed for its success. Detaching forces from the RCT making the main landing to conduct a secondary landing is justified only when the expected results will be greater than if these forces were used in the main landing.

49. SECONDARY LANDINGS

a. Secondary landings are those made outside the immediate area of the main landing, and that directly or indirectly support the main landing. These landings may be made before, during, or after the main landing. A secondary landing is planned and executed as a main landing since it may be exploited rather than the main landing. This fact is considered in selecting landing areas and in tactical and logistical plans. Secondary landings are made to—

- (1) Secure a passage for naval vessels.
- (2) Deny the use of an area to the enemy.
- (3) Provide flank protection.
- (4) Delay and divert enemy reserves, ships, and aircraft from the main landing.
- (5) Seize position areas for supporting artillery and rocket units.
- (6) Seize airfield sites suitable for land based aircraft in support of the main landing.
- (7) Seize positions for navigational aids, air warning installations, safe anchorages, or temporary advance naval base facilities.

b. Often secondary landings are organized after the main landing and the development of the situation ashore. Such landings are needed in seizing atolls or archipelagoes when the main landing is followed by subsequent landings to destroy isolated groups on smaller adjacent islands.

50. DEMONSTRATIONS

Demonstrations are exhibitions of force or movement that indicate an attack. While demonstrations may not involve an actual landing, they are considered in the tactical plan because their use may contribute greatly to securing tactical surprise. A threat to important enemy objectives over a large area may mislead the enemy as to the time, place, and strength of the main landing. Demonstrations over a large area are coordinated with other landings to divert enemy armored and motorized formations, aircraft, surface vessels, and submarines from

the main landing. Demonstrations conducted with and in the general area of an actual landing are effective in causing a dispersion of enemy effort. Demonstrations must be planned and coordinated by the highest headquarters involved in the operation to avoid duplication, confusion, and compromise. For details on amphibious demonstrations, see paragraphs 332-334.

Section IV. SELECTION OF THE LANDING AREA

51. GOVERNING CONSIDERATIONS

The landing area consists of the sea, air, and land areas required for establishing a beachhead. The selection is governed by the mission, the enemy situation, location of the objective, configuration of the coast line, beach characteristics, suitability of the terrain for ground operations, hydrographic considerations, and meteorological factors.

52. MISSION

The area selected should permit the landing of enough troops, equipment, and supplies to accomplish the mission, and should be so located that these troops can reach their objective within acceptable time limits.

53. ENEMY SITUATION

a. Landing areas possessing the best beaches and the most favorable avenues leading inland are usually those most strongly defended by the enemy. Fortified areas are attacked only when enough ships, aircraft, and ammunition are available to neutralize enemy weapons, or when the initial seizure of the areas by airborne troops can be promptly and successfully supported. An attack across heavily defended beaches is seldom justified if it may be avoided by landing on beaches that are undefended or lightly held. However, undefended or lightly held beaches with favorable characteristics are generally found only at a considerable distance from an important objective, and their selection has the disadvantage of an extended overland advance.

b. The probable location of enemy land, sea, and air reserves and the facility and speed of their use are considered when the operation is to occur on a land mass or island of appreciable size. The landing area may be selected close to the objective when enemy reserves can be prevented from prompt intervention.

c. In evaluating the influence of hostile dispositions on the selection of the landing area, the landing force commander considers the availability of adequate logistical and fire support, the need for additional training and special equipment, and the enforcement of measures for insuring security and gaining tactical surprise. Special plans are

made to interfere with the concentration and movement of enemy forces, especially reserves.

54. LOCATION OF INITIAL OBJECTIVE

The proximity of the landing area to the initial objective is desirable. Maximum advantage is taken of the shock effect of the landing, which is followed by a short advance to the initial objective. This advance is powerfully supported by air and naval gunfire. A brief assault increases the probability of achieving surprise if the initial objective can be seized before full-strength intervention of the hostile force.

55. CONFIGURATION OF THE COASTLINE

Shorelines are classified as convex, concave, straight, or a combination of these three basic types. In addition there are certain special types of coast lines like coral atolls, estuaries, small island clusters, frozen shores, and fiords.

a. The *convex shoreline*, in the form of a peninsula, a large promontory, or a delta, favors the attack by permitting flanking fire by naval guns and permitting attacking units to rest both flanks on the water (fig. 3). Except for inferior hydrographic characteristics, the convex shoreline is the most favorable coastal formation for the attack since it invites dispersion of hostile defensive fires and prevents effective enfilade fire on the landing beach. However, the base of a peninsula may constitute a strong enemy defensive position.

b. The *concave shoreline*, in the form of harbors, bays, and indentations in the coastline, is unfavorable because it provides an opportunity for the convergent massing of enemy fires at any point in the area and permits the establishment of an organized system of cross fires that are extremely dangerous to the attacker (fig. 4). However, the most favorable hydrographic landing characteristics are usually found in harbors or in bays. The existence of sheltered water and favorable landing conditions may dictate the selection of a concave shoreline. The promontories that form the flanks of the landing beach are reduced by direct assault or neutralized by fire before the landing.

c. *Convex and concave shorelines* may force the attacker increasingly to concentrate his troops and supplies. This greatly increases the problem of dispersion as a defense against mass destruction weapons.

d. The *straight shoreline* may present the advantage of a suitable landing beach while decreasing the opportunity for enemy enfilade fire (fig. 5). The shoreline need not be suitable throughout, but the selected landing beaches should permit mutual support by landing

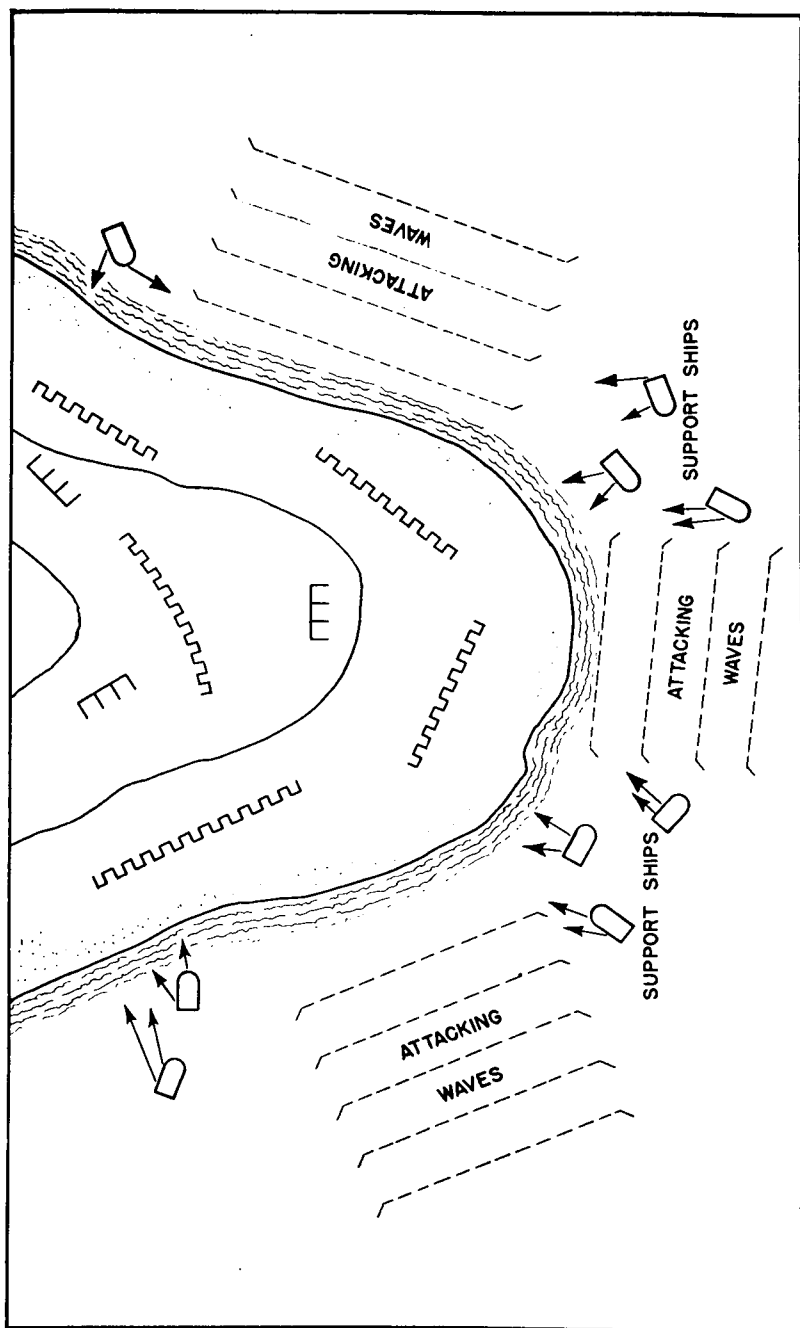


Figure 3. A convex shoreline.

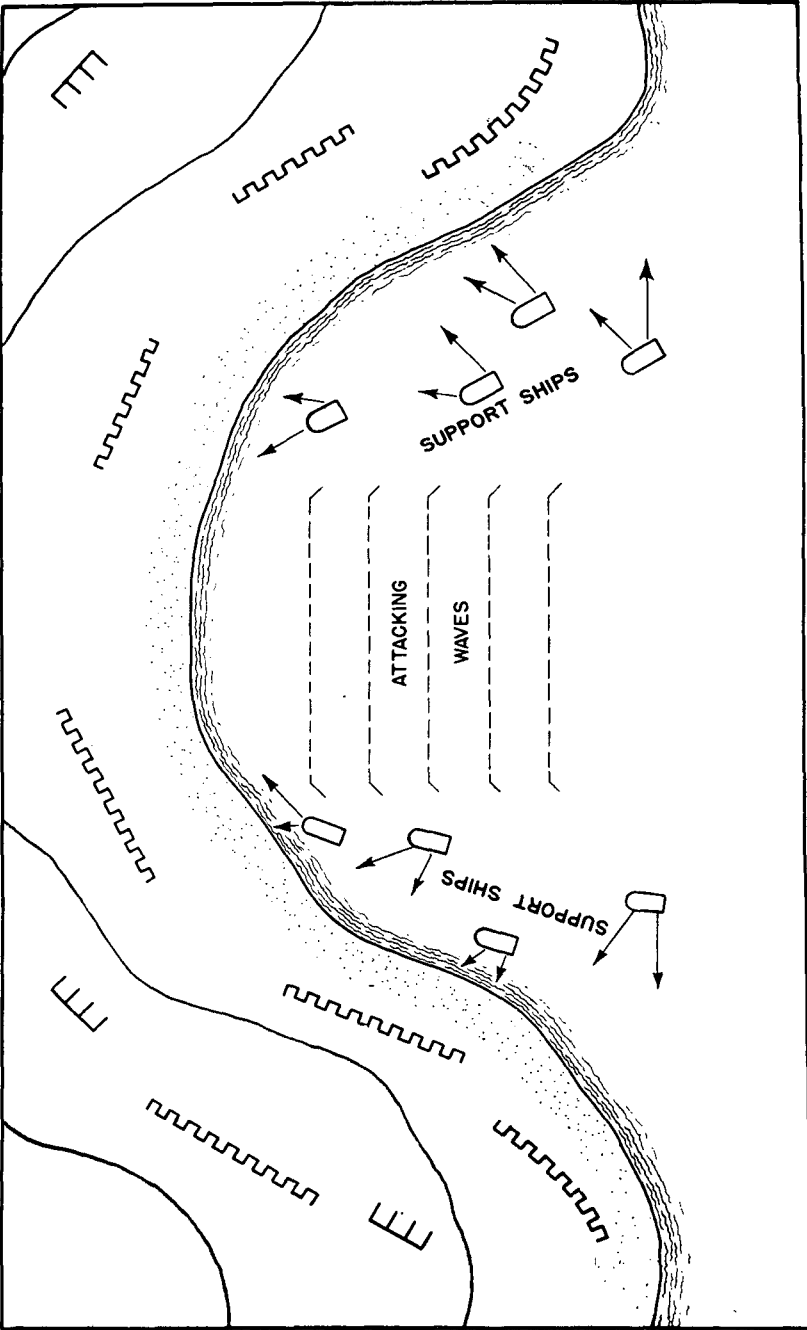


Figure 4. A concave shoreline.

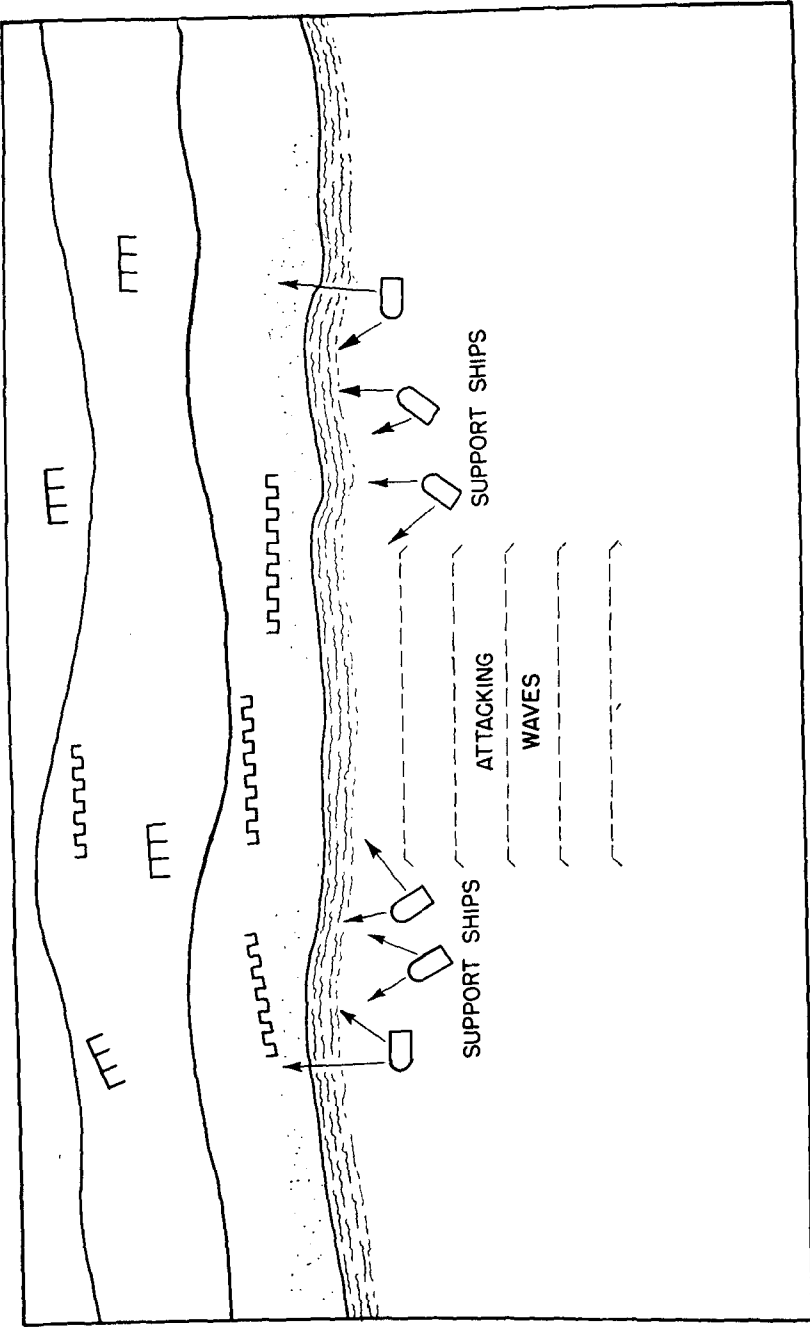


Figure 5. A straight shoreline.

teams and lend themselves to later organization into a consolidated beachhead.

e. An *atoll* is a coral formation common to tropical seas (fig. 6). When an ordinary island is surrounded by a heavy coral growth in the shallow waters along its shore, the coral may become so heavily encrusted as to form a more substantial land mass than the island itself. Generally the circular coral formation is cut at intervals along its circumference by channels through which the sea passes. The result is a circular chain of small, flat islands surrounding a lagoon. An atoll can possess aspects of both concave and convex shorelines at the same time. If an attack is launched from within the lagoon upon one of the islands, the landing beach may have a convex form while the adjoining islands form the typical flanking promontories of a concave shore. The attack on an atoll is influenced by the island formation concerned, and each case is decided on its own tactical merits.

f. An *estuary* is the indentation in the coast line formed by the mouth of a large river (fig. 7). Although the tides and currents set up at the mouth of such a river are ordinarily unfavorable to the conduct of a landing, conditions may sometimes dictate an operation of this kind. Often the only place along a considerable distance of coast line where a dangerous fringing reef is cut is at an estuary. The tactical significance of landing at an estuary depends greatly on the scale of the operation. It is undesirable for the inland avenue of approach to be divided by a large river. Consequently, it is usually desirable to land on only one bank of the estuary. Defending forces on the opposite bank may be in position to deliver flanking or enfilade fire into such a landing. In this case it is necessary to neutralize positions located on the opposite bank by naval gunfire or airstrikes before the main landing, or to seize these positions by executing a secondary landing.

g. Certain coast lines are protected by *small island clusters*. These are groups of islands of varying size lying so close to the mainland that they create a complicated system of waterways immediately offshore. This formation presents serious problems for the attacker and the defender. The defender, by organizing most of the important individual islands, is able to fire from any direction on waterborne attackers attempting to thread their way to the coast of the mainland. Also, the water approaches for landing craft may be tortuous and restricted. However, offshore island defensive positions are difficult to maintain if the attacker has command of air and sea at the time and place of landing. Separated by water, the islands may be isolated and reduced in detail by successive secondary landings. A chain of small island clusters offers certain advantages as a landing area, and it may be advisable or necessary to seize one or more before executing the main

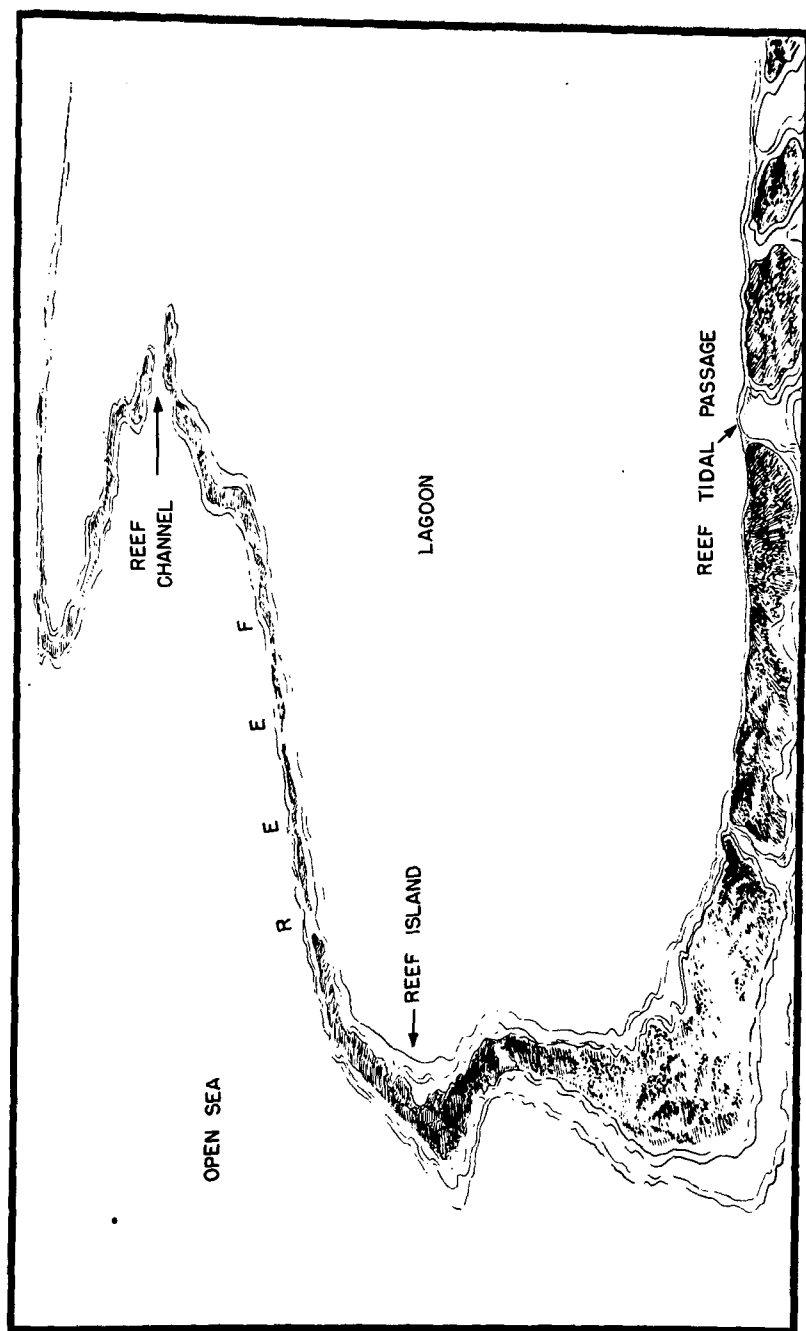


Figure 6. An atoll.

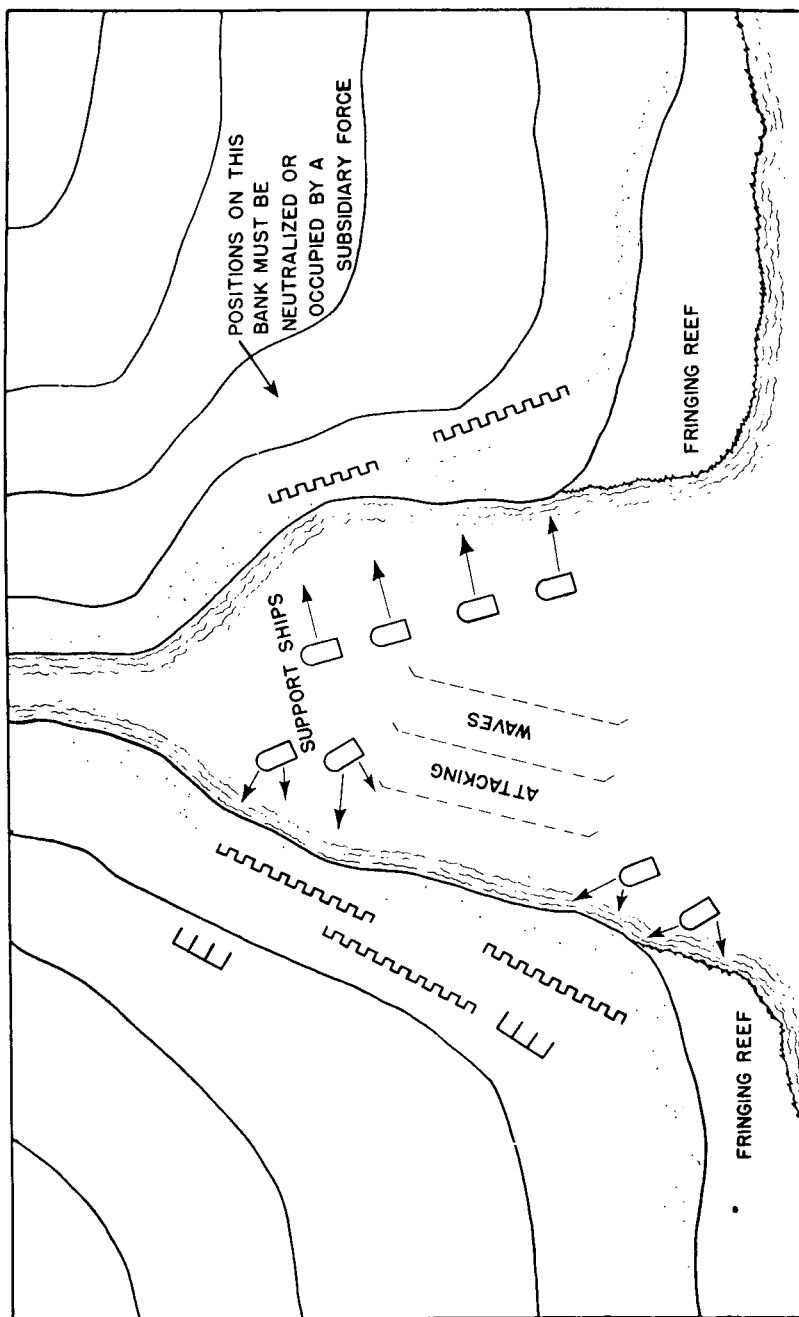


Figure 7. Landing in an estuary.

landing. Often field artillery or rocket units can be landed on an adjacent island to support a landing. The islands may be used to mask the assembly of landing craft. An island may also be used as a base for further operations.

h. Frozen shores are shores that border arctic or subarctic areas, or shores that are swept by cold ocean currents. The shape of such shores may be changed by freezing. When the entire sea approach is frozen the region does not favor amphibious landings. However, during certain seasons the coasts may freeze or thaw to a limited extent, permitting landing operations. A level expanse of ice extending a few hundred yards seaward is well suited to the organization of defensive small arms fire. This ice should be made secure from enemy observation and fire.

i. A fiord is a long narrow inlet or arm of the sea between high rocks or banks, nearly always of glacial origin. It often ends in a passable beach at the inland end, and usually is an excellent protected anchorage, free from navigational hazards. Landing against opposition presents unusual difficulties. The fiord lacks maneuver room for ships. Enemy fires can be concentrated against the landing. The high, steep, rocky walls are serious obstacles to attacking troops.

56. BEACH CHARACTERISTICS

a. The seizure of critical tactical localities outlining a beachhead is greatly aided by the proper selection and assignment of beaches within the selected landing area. A beach should be large enough for the landing of at least one BLT—about 500 to 1,000 yards wide. More than one beach should permit mutual support by adjacent BLT's and should provide immediate access to the natural inland avenues of approach to critical terrain features.

b. From the point of view of landing conditions, favorable beaches are those that permit the beaching of landing craft and landing ships close to the shoreline, and permit rapid debarkation and advance inland of troops and equipment without undue interference from navigational hazards, surf, tide, or the physical consistency of the beach itself. Open beaches on the windward side, where surf is likely to break during the several days of a landing operation, are especially unfavorable, particularly where there are rocks and coral. Gently shelving beaches, or those having offshore bars or reefs, cause landing craft and ships (except landing vehicles) to ground at a considerable distance from the shoreline, lengthening the time for debarkation and increasing the risk from hostile fire.

c. Under all tide conditions, approaches to the beach should be free from natural or artificial obstructions to navigation. It is particularly desirable that there be enough room seaward to permit landing craft

or landing vehicles to deploy into their attack formations before coming under effective artillery, mortar, or small arms fire. Narrow entrances between islands and channels in reefs prevent this early deployment and greatly increase the effectiveness of the defender's fire.

d. Some of the beaches should provide suitable landing conditions and routes inland for armored and wheeled vehicles and tractors. These beaches may be captured initially or in subsequent operations, or they may be developed ashore. Other beaches need only be suitable for foot troops or pack units. Precipitous beach slopes can be negotiated by foot troops and often offer cover from direct enemy fire. Landing conditions at the foot of rocky cliffs, however, are hazardous and generally are possible only in calm seas. Flat beaches extending inland for a considerable distance to the first covered position give the enemy clear fields of fire and observation, and lengthen the time for debarkation. Shallow beaches benefit the attacker, permitting him to reach cover and concealment soon after landing. The presence of woods or a bluff close to the beach can be an advantage if the advance of combat equipment is not seriously impeded and naval gunfire and air support is not restricted too much.

e. In operations for which supply will be maintained indefinitely over assault beaches, special consideration is given to the suitability of the beaches for the contemplated supply operation. The physical consistency of the beach, natural exits from it, and the proximity of suitable areas for extensive supply installations are essential factors. Improvement of beach areas often requires the use of special equipment, especially earth-moving machinery. The type and quantity of material required for this development is determined by the characteristics of the soil, vegetation, and configuration of the ground in the beach area. Water obstacles, swamps, and marshes may require amphibious vehicles of special types.

f. Tactical requirements may direct that landings be made on a shore without suitable beaches. Special consideration is given to types of landing craft or vehicles that can be used, limitations that adverse sea and weather conditions place on such landings, capabilities for landing equipment, and required special training.

57. SUITABILITY OF WEATHER AND TERRAIN FOR GROUND OPERATIONS

The influence of weather and terrain on ground action does not differ from that in normal land operations. After the shoreline is evaluated, a tactical study is made of the inland area. The proposed zone of action is studied to determine critical and artificial obstacles, cover and concealment, and avenues of approach. The tactical effect of the

weather and terrain on enemy and friendly operations is then determined.

a. To protect the landing area from observed fire, the beachhead should include *critical terrain features* such as high ground that mask observation from points farther inland, or are deep enough to prevent ground observation. Where there is no dominating terrain inland, defensible man-made features such as antitank ditches, railroad banks, or small villages, may assume increased importance.

b. When the beach area gives the defender clear *observation and fields of fire* over a depth of several hundred yards, the difficulty of landing is greatly increased. The area in which the defender can place weapons for direct fire on the beach is limited by the configuration of the ground and the density of vegetation. Shallow areas are an advantage to the attacker, since after a relatively short advance he can deprive the defender of observation on the beach. The presence of woods or a cliff near the beach restricts naval gunfire support. Because of lack of observation, the effectiveness of naval gunfire and air support is reduced in supporting an attack in woods.

c. The landing area is selected to permit the rapid movement of the initial assault waves to commanding terrain. The beach area is undesirable if it is backed by any natural *terrain obstacle* such as soft ground, dense vegetation, water obstacles, coastal mountains, and cultivated areas.

- (1) Soft ground may include loose sand, quicksand, mud, volcanic ash, tundras, rice paddies, and other irrigated soil. Loose sand is difficult for heavy vehicles and equipment to negotiate. Sand also causes malfunctioning and stoppages of automatic weapons. Volcanic ash has many of the characteristics of loose sand and presents the same difficulties.
- (2) When the number of inland routes from the beach is limited, mud becomes an especially difficult obstacle. Since all vehicular traffic funnels through the beach area, soil not possessing average seepage may be churned into a quagmire by heavy military equipment.
- (3) Frozen areas are considered as potential obstacles, depending on the season, degree of traffic, and scale of operations. Tundra is a type of ground that consists of a mixture of ice and glacial residue (chiefly crushed rock in arctic regions). Tundra is frozen to extreme hardness in winter. In summer it usually thaws to a depth of two to ten feet, forming a muddy morass or a multitude of small ponds separated by relatively stable ground. In arctic and subarctic regions muskeg, a moss covered bog, may partially or completely conceal the true extent of small bodies of water.

- (4) Irrigated ground may be easily inundated by a defender to present an effective obstacle to the attacker. Rice paddies are a unique type of irrigated ground in that their terraces can be organized and defended. They are characterized by avenues of approach suitable for foot traffic only.
- (5) In areas having abundant rainfall, dense vegetation—mangrove swamps, wild cane, sago palms, nipa palms—is usually encountered from the water's edge inland. The vegetation may also consist of secondary growth and tropical rain forests. Only occasional cleared areas may be found and these are almost invariably overgrown with lesser obstacles like tall grasses. Movement through dense vegetation is extremely difficult and usually requires much cutting.
- (6) Relatively clear areas also may be interrupted by the artificial flooding of rivers, swamps, marshes, canals, lakes, and lagoons by the defender. Such water obstacles constitute potential obstacles to military movement and are closely studied to determine their effectiveness and the type of passage they obstruct.
- (7) Coastal mountains are a distinct obstacle to a landing and excellent beaches may be backed by cliffs and escarpments. Special equipment and training are needed to overcome these obstacles.
- (8) Although cultivated areas are not usually formidable obstacles, certain types like cane and corn fields or rice and taro paddies present special problems to the attacker. Tropical plantations and many types of temperate orchards may be obstacles depending on the spacing between trees, the amount of undergrowth, and the type of irrigation or drainage. Hedgerows may be found in old cultivated areas. These earth-formed walls form natural barricades. They are characterized by their varied patterns in old countrysides. They lend themselves to defense because they favor the installation of mutually supporting positions.

d. To obtain the maximum *cover and concealment*, consideration is given to the ground and vegetation. Sand dunes, sea walls, shell holes, bomb craters, and built-up areas provide cover from direct fire. Grasslands, cultivated areas, built-up areas, and woods provide excellent concealment.

e. A landing area is chosen that allows the landing force to move out of the beachhead area over suitable *avenues of approach* if the assigned mission requires movement overland to an interior objective. Such avenues of approach include corridors, ridges, roads, water, and rail nets, and covered routes of advance free from natural and artificial obstacles. The force should not have to advance through

comparatively impassable terrain that is suitable for strong enemy defensive positions.

58. HYDROGRAPHIC CONSIDERATIONS

In considering naval requirements, the type and function of the ships and craft determine the desirable characteristics of a landing area. Shelter from heavy gales and storms is desirable. Special considerations are given to the beach gradient, approaches to the beach, surf, tide, currents, and the bottom.

a. Large vessels require extensive maneuver areas free from navigational hazards. Good holding ground is desirable for anchoring assault shipping. Fire support ships require sea areas situated to permit effective fire support. An essential requirement is deep water close inshore for short range fire.

b. Landing craft require greater protection from the weather than ships. In addition, the function of landing craft in the assault requires beaches of suitable gradient, negotiable surf conditions, and freedom from enemy mines and underwater or beach obstructions.

c. The hydrography of the landing area is of great importance both in the planning phase and during the actual execution of the landing. The landing area may provide tactical advantages ashore, but it has doubtful value if the landing craft cannot place the required troops, equipment, and supplies ashore.

d. The underwater gradient of a beach is the slope of the sea bottom off the beach. This slope is expressed as a ratio of depth to horizontal distance.

- (1) A gradient of 1 to 40 indicates a uniform variation of depth of 1 foot in every 40 feet of horizontal distance. A commonly-used gradient scale is—
 - (a) Steep —more than 1:15
 - (b) Moderate—1:15 to 1:30
 - (c) Gentle —1:30 to 1:60
 - (d) Mild —1:60 to 1:120
 - (e) Flat—less than 1:120
- (2) Since all types of landing craft are built with sloping bottoms, the slope of the gradient determines how far offshore each one will beach. The greater the distance from the beach, the longer the troops are exposed to hostile fire while wading ashore, and the more complex become the problems of unloading equipment and supplies on the beach. A steep gradient permits craft of all types to beach satisfactorily, and it offers approaches that are usually free of natural obstacles. However, a boat grounding on this type of beach is unable to get a firm footing because the amount of boat bottom in con-

tact with the beach is relatively small. In addition, the bow of the craft is forced up and the stern down, making the craft unstable and sensitive to the influence of currents, wind, and surf.

- (3) The beach gradient also has an effect on the surf. On a steep beach where deep water is close inshore, the surf breaks close to the shore. On a gently sloping beach the heaviest surf breaks at a considerable distance from the shore.
- (4) The beach gradient can provide a basis for estimating the effect of enemy beach obstacles. A long flat beach permits the installation of obstacles, whereas a steep beach limits their extent and effectiveness. The gradient may be determined by hydrographic reconnaissance parties, underwater demolition teams, and aerial photography.

e. When planning an operation, *surf conditions* are studied in conjunction with the beach gradient because the surf depends on the beach exposure and the underwater topography. In many places the surf varies with the winds and the seasons. When the prevailing winds are onshore, the surf may be high enough to prevent a safe landing. Yet during another season the beach may be favorable because the prevailing winds are offshore causing the surf to be relatively light. The height of surf alone can be a critical factor that may disrupt landing formations and cause casualties.

- (1) The operation of retracting a craft from the beach in heavy surf is difficult and dangerous. High surf exercises a powerful influence on the actions of craft and demands experienced, skillful coxswains. Amphibious vehicles (LVT's) are even more difficult to control in violent water than landing craft and are more susceptible to the dangers of surf.
- (2) The action of the surf, coupled with changes in tide, may completely alter the character of a beach—particularly one consisting of sand or gravel. Between the time of planning the operation and the day of landing, constant check of the beach area by aerial photography is needed to discover such alterations.

f. The *tide* is the periodic rise and fall of the water caused by the gravitational attraction of the moon and sun and varied by the rotation of the earth. High tide, or high water, is the maximum height reached by the rising tide. The difference between the level of water at high tide and the level of water at low tide is known as the *range of tide*. The *period of tide* is the interval of time from one low tide to the next recurrent low tide, or from one high tide to the next high tide. This period averages about 12 hours and 25 minutes. About every two weeks, when the moon is new or full, the highest high waters and

the lowest low waters occur, causing a large range of tide. Tides during this period are known as *spring tides*. When the moon is in the first or third quarter, the range of tide is unusually small. Tides during this time are known as *neap tides*. The term *tidal current* is applied to the actual flow of water that occurs as the tide rises or falls. When the tidal current flows shoreward, it is known as a *flood tide*; when it flows seaward, it is known as an *ebb tide*. Changes in the wind and barometric conditions may cause variations in the tide from day to day.

g. The *tide level* relative to the beach gradient greatly influences the beaching of landing craft. When a relatively large tide range occurs on a gently sloping beach, landing craft may be stranded on a dry bottom before they are able to retract. Unless this possibility is calculated, a critical number of landing craft may become inoperative until the next rise of tide. The dropping of the tide may cause craft to ground far off the beach proper, compelling the troops to wade a great distance to shore. A landing at high tide may be desirable to overcome the disadvantages of a gentle gradient, but often hostile defensive obstacles are so placed as to be more effective at high tide.

h. A *current* is the continued motion of the water in a given direction. Currents are classified as offshore currents or inshore currents, and both types are of importance to an amphibious assault.

- (1) Offshore currents are found seaward of the surf and especially around the entrances to bays, in sounds, and in channels between islands and the mainland. They sometimes reach velocities of several knots. Inshore currents are found relatively close to the shore.

- (2) Unless allowances are made for the effects of currents, they may disrupt landing formations or impede the movement of landing craft or vehicles so much that time schedules are affected. The force of a current flowing parallel to a landing beach can be strong enough to cause the broaching of landing craft. Broaching is dangerous in the presence of heavy surf and may lead to swamping. The unloading of vehicles, heavy equipment, and supplies is especially difficult under these conditions because the craft cannot maintain a position perpendicular to the beach while discharging cargo, and the beach may become cluttered with broached boats.

i. The *bottom* close inshore may be of many different substances: for example, mud, sand, rock, coral, coral heads, boulders, or a combination of these. The influence that the bottom has on an amphibious operation varies with the beach gradient. The less the slope, the greater the effect of unfavorable bottom material. The most desirable beach has a firm sandy bottom. Mud and soft sand are hazards to landing craft, causing them to bog down. Landing vehicles belly

up and lose all traction. Wheeled vehicles have a tendency to dig into the mud and sand and become immobilized. Rough coral, coral heads, and boulders may damage landing craft and vehicles.

59. METEOROLOGICAL FACTORS

Before operational planning begins, long-range meteorological forecasts are obtained. The plans are based on the predicted weather en route to and in the landing area. The chief weather elements to be considered are wind, visibility, and temperature.

a. The most detrimental factor is the *wind*, as it influences the sea conditions. A violent storm can prevent the arrival of an amphibious force at its destination. Overloaded ships may be forced to slow down when moving through high waves, causing convoys to be scattered. Booms, topside gear, and deck-loaded cargo on ships may be lost or damaged. Ship-to-shore movement may be limited or made impossible as a result of damage to craft during the voyage. Troops suffer severely from seasickness. An extremely high wind disrupts landing schedules and formations by restricting the speed and maneuverability of the craft. Normal problems of control and coordination become even more complex.

b. The more important atmospheric conditions that may occur to influence *visibility* are darkness, precipitation, snow, clouds, and haze. Visibility at all altitudes is important. Cloud cover at low altitudes interferes with vertical visibility from aircraft. If naval gunfire support depends on observation of the beach and coastline from the ships, darkness, dense rain, snow, and haze all reduce the effectiveness of the fire support. Poor visibility may so seriously disorganize the assembly of landing craft for the ship-to-shore movement that the execution of planned landing formations is hazardous.

c. *Temperatures* to be encountered in the target area can seriously affect a landing force. Extremes of heat and cold influence the capabilities of personnel and matériel. The detrimental effect of extreme temperatures can be minimized by familiarizing all personnel with difficult conditions and by using the proper equipment and supplies.

Section V. THE BEACHHEAD

60. BASIC CONSIDERATIONS

a. After a landing is made, the first consideration ashore is to extend the beachhead far enough inland to insure the uninterrupted landing of troops, equipment, and supplies and to secure terrain features and maneuver space for subsequent operations.

b. Plans for the use of a beachhead include consideration of the tactical aspects of the terrain and of the amount of construction and

protection required for its expansion. Other considerations are the availability of personnel and matériel to operate it, the suitability of the shoreline and anchorages for the vessels and landing craft to be used, and the capacity for handling equipment and personnel.

c. The establishment of the beachhead is an offensive operation. The beachhead should be continuously expanded until the objective is seized. Therefore, efforts are aimed at the early seizure of terrain and shore features including ports, airfield sites, and airfields that will speed this advance.

61. EXTENT OF BEACHHEAD

The depth and frontage of a beachhead depend on the mission, the size of the landing force, the terrain (especially natural obstacles), the time available for organization of the ground, and the probable enemy reaction. The size of the beachhead is further influenced by the terrain features behind the landing beaches, the extent to which available forces can expand initial landings and organize occupied ground, and the desirability of initial defense positions against expected enemy reactions to the landing. Depth and frontage are not fixed but changes as additional forces land or shore facilities are emplaced. The landing force guards against over-extension of its units to avoid endangering its flanks, beach establishments, and inland lines of communication, particularly in the early stages of the assault. Constant improvement is made in measures for defense against ground, sea, and air attack in the occupied area.

62. BEACHHEAD LINE

The beachhead line fixes the limits of the beachhead (fig. 8) and is so located to permit its early seizure. It is not considered as a defensive position to be occupied and organized as such, except in the case of an occupation mission. In case of enemy counterattacks it is used as a tentative main line of resistance, and it is occupied and organized to the extent demanded by the situation. Beachhead lines are selected to include terrain that will assist further advance and are readily identifiable by well-defined terrain features. Additional factors determining the position of the beachhead lines are the limitations imposed by enemy fire and observation. The extent of limitation depends on the size of the beachhead involved.

a. The *battalion beachhead line* extends far enough inland to prevent enemy direct fire of small arms weapons and ground observed high angle fire from being placed on the beach.

b. The *regimental beachhead line* extends far enough inland to prevent enemy ground observed light artillery fire from being placed on the beach.

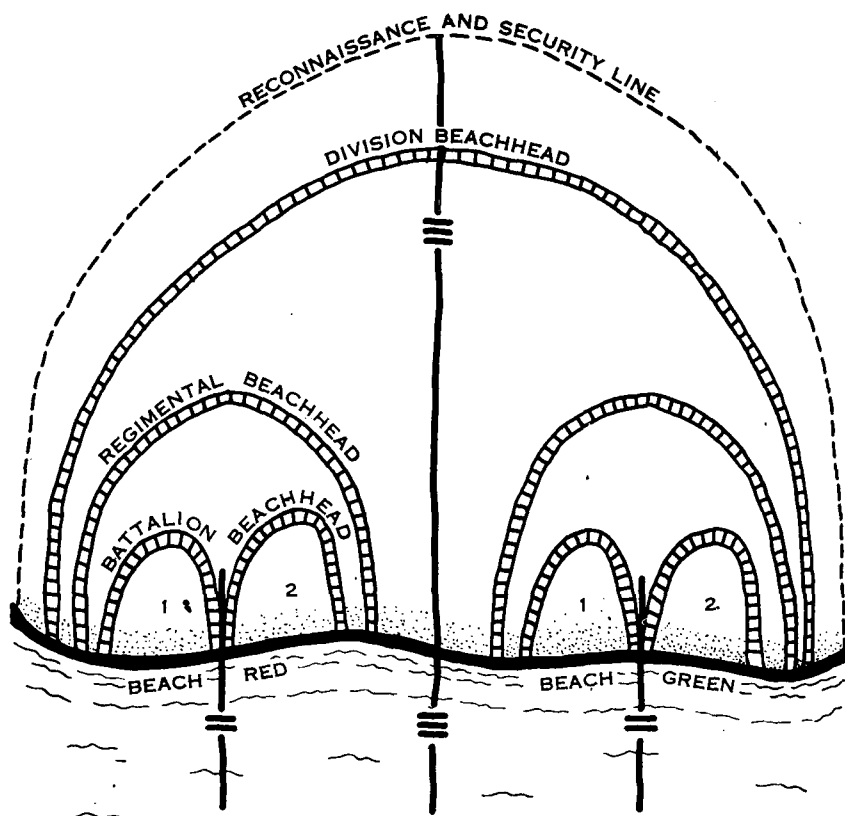


Figure 8. Successive beachhead lines (schematic).

c. The seizure of the *division beachhead line* protects the beach from enemy ground observed medium artillery fire, and provides for expansion of the beachhead to provide room for the landing and maneuver of division and force elements.

63. RECONNAISSANCE AND SECURITY LINE

The reconnaissance and security line is that line beyond the beachhead line from which reconnaissance and security elements are positioned to observe likely enemy avenues of approach in order to prevent the enemy from surprising friendly forces.

64. ORGANIZATION OF THE BEACHHEAD

a. The organization of a beachhead includes all factors pertaining to tactical defense and offense. It also includes the installation of shore administrative establishments to support the initial assault forces and to support projected tactical operations. Individual BLT's establish only a logistical and local defense organization in the landing

beach area. A beachhead may include adjoining or separated beaches, ports, airfields, and any other coastal installations needed to accomplish the mission.

b. The beachhead is organized for operation in conformity with the major plan of operations of the force. The organization may provide purely tactical advantages for rapid advance inland requiring only temporary or restricted development, or it can be expanded and organized to provide a permanent base for the logistical support of larger forces debarking over the original assault beaches. Variations in the projected use of the beachhead materially alter the amount of organization and type of force required for its operation.

Section VI. TIME OF LANDING

65. GENERAL CONSIDERATIONS

The approximate date for starting an amphibious operation is normally established by the headquarters directing the operation. The approximate date is prescribed by limiting dates to establish the period during which the main landing is to be made. In planning the approximate date for a landing, higher commanders are influenced by—

- a. The forces available.
- b. The state of readiness of available forces.
- c. The enemy situation, both present and projected.
- d. Coordination with preliminary operations.
- e. The seasonal conditions in the landing area.
- f. The purpose of the operation.
- g. Period of daylight.

66. SELECTION OF D-DAY

The attack force commander, with the theater commander, usually selects the specific date of landing after considering the local conditions in the landing area such as the enemy situation, weather, tides, and moon phases. He studies local weather conditions between the limiting dates prescribed by higher authority, and determines the average and extreme conditions of storms, fogs, irregular winds, or variations in temperature. He also considers the significant tidal effects and the moon phases between the limiting dates.

67. SELECTION OF H-HOUR

Any hour during daylight or darkness may be selected as H-hour.

a. The principal advantages of a *daylight landing* are that air and naval superiority can be better maintained, and the navigation of ships and landing craft or vehicles is less complex. Ships can be de-

fended against hostile air and submarine attack, and shore operations are easier to control.

b. To obtain maximum surprise, *darkness* may be used for debarkation, movement to the shore, and landing of the initial assault elements of the landing force. Enough troops, field artillery, antiaircraft artillery, and antitank weapons should go ashore soon after the landing to meet enemy air and ground attacks. In some cases, debarkation and movement to the shore is made in darkness, with the landing being made at the beginning of morning nautical twilight (BMNT) or soon thereafter; the operations ashore being conducted principally during daylight. For night landings see paragraphs 328-331.

c. The selection of the *exact hour for a daylight landing* involves consideration of these items:

- (1) The desirability of conducting the initial debarkation and all or a part of the ship-to-shore movement under cover of darkness.
- (2) The reduction of the duration and effectiveness of naval gunfire and air support before the landing.
- (3) The need for a navigational track through restricted waters requiring a daylight approach.
- (4) The desirability of a night approach to counteract the increased effectiveness of enemy air defenses.
- (5) The desirability of a night approach to achieve surprise.
- (6) The need for enough daylight hours to seize and consolidate the initial objectives before nightfall.

d. The *stage of the tide* is considered as it affects the passage over underwater obstacles, offshore bars, reefs, or shoals, and the beaching of landing ships and craft. It is usually desirable to start the attack on a flood (rising) tide for ease in retracting landing ships and craft. If the time of landing is established for two or three hours before high tide, maximum advantage is taken of the rising water to overcome the hazards of unfavorable gradient and beach bottom. Landing at low tide is desirable because underwater obstacles will be exposed and their passage and destruction made easier.

e. Where *fog and wind* follow a definite and predicted pattern, their effect is considered in selecting the hour of landing. Fog conceals the ship-to-shore movement, but restricts supporting air operations. It increases the difficulty of adjusting naval gunfire and increases control difficulties ashore.

f. The *direction of the approach* relative to the sun is considered. If the line of sight to the beach is toward the east, the rising sun hampers vision. On the other hand, if the sun is behind the landing force, visibility is better.

g. *Visibility* after the landing should be favorable to permit full

naval and air support. H-hour may be after sunrise to obtain enough daylight for the identification of beaches and for the accurate delivery of naval gunfire.

h. By the *use of smoke*, conditions similar to darkness or fog can be placed upon part or all of the landing area. For the use of smoke, see paragraphs 248-255.

Section VII. OPERATIONAL PLANNING

68. GENERAL

Once the landing area is determined and missions assigned, the principal features of the general plan of attack are decided. The general plan of attack consists of the scheme of maneuver ashore, the landing plan, and the plan of supporting fires. These plans are interdependent and require simultaneous consideration and preparation. To insure the tactical success of the scheme of maneuver ashore, compromises may be required in the landing plan or the plan of supporting fires. The operation plan for the landing and the seizure of the beachhead is prepared as early as possible. Much detailed planning, particularly supply, communication, and air support, is made using the tactical plan as a basis.

69. DIVISION GENERAL PLAN OF ATTACK

a. The division general plan of attack includes details for the participation of ground, air, and naval elements in the landing assault. The plan for the landing force is in the form of a standard operation plan as prescribed in FM 101-5, and includes the—

- (1) Date and hour of landing.
- (2) Exact beaches to be used.
- (3) Formation for the landing.
- (4) Scheme of maneuver ashore.
- (5) Fire plan.
- (6) Objective on the beachhead line.
- (7) Intermediate objectives to the beachhead line.
- (8) Major scheme of shore party operations.

b. Supporting plans, usually included as annexes to the division plan, include provisions for—

- (1) Secondary landings and demonstrations.
- (2) Air operations.
- (3) Naval gunfire support.
- (4) Communication.
- (5) Intelligence.
- (6) Supply and evacuation.
- (7) Naval plans relative to the attack.

- (8) Antiaircraft protection.
- (9) Chemical operations.
- (10) Bomb-disposal activities.
- (11) Initial defensive plans against land and sea attack.

c. Details prescribing the actions of the RCT and BLT may be included in detail or outlined. The division operation plan should prescribe RCT missions, landing formations for RCT's the number of BLT's to be used in the assault, exact beaches on which landings are to be made, use of available landing craft, time of the initial landing, regimental beachhead line or lines, ultimate shore party organization, and the details of supporting air and naval gunfire.

70. RCT GENERAL PLAN OF ATTACK

The form and content of the RCT operation plan is covered in appendix II. Those matters on which the RCT commander must make decisions before the plan can be completed by his staff are the—

- a.* Organization of BLT's and the attachment of additional elements.
- b.* RCT scheme of maneuver ashore.
- c.* Battalion boundaries.
- d.* Means of regaining control of the RCT after landing.
- e.* Landing and use of the assault BLT's and supporting units.
- f.* Landing and use of the RCT reserve.
- g.* Requirements for naval gunfire, air, and artillery support other than that specified in the division plan.
- h.* Utilization of landing craft and amphibious vehicles.
- i.* Quantities and types of supplies, vehicles, and equipment to accompany troops.

71. SCHEME OF MANEUVER ASHORE

a. The RCT scheme of maneuver ashore is the tactical plan of maneuver that the RCT executes after landing to accomplish its mission. It is based on normal considerations governing the conduct of ground combat modified by the special conditions that develop in a landing operation. Fire support capabilities of ships and air units are incorporated in this plan. It should also permit the best use of terrain and supporting fires for the advance inland. Special consideration is given to the following:

- (1) Assignment of terrain features dominating the beaches as initial objectives for specifically designated units. These assignments are made to insure the early seizure and security of the landing beaches.
- (2) Assignment of inland terrain features as objectives for specifically designated units. These assignments are ordered to insure the seizure of the RCT beachhead.

- (3) Establishment of the direction of attack.
- (4) Landing of the reserve and the field artillery.
- (5) Availability of naval gunfire and air support for continuing operations.
- (6) Reorganization and consolidation of the RCT beachhead.
- (7) Capabilities of the regimental shore party to continue logistical support of the operation.

b. After determining the regimental scheme of maneuver, the RCT commander orients his commanders on the plan and receives their recommendations. Within a specified time, lower commanders submit for approval the schemes of maneuver by which they intend to accomplish their specific missions.

72. RCT OBJECTIVES

a. The regimental commander, in the development of his scheme of maneuver, must select objectives that will insure the establishment of the RCT beachhead. The RCT beachhead line is usually located to protect the beaches from enemy ground observed light artillery fire and is determined by the terrain features dominating the beaches. The enemy situation, the terrain, and the orders from the division commander, determine the extent to which this line is occupied.

b. The RCT commander may designate successive objectives or phase lines to coordinate the advance of the assault BLT's from the beaches to the regimental beachhead line. Successive objectives or phase lines permit the reorganization of the attacking troops, the passage of lines, and the coordination of field artillery, naval gunfire, and air support. They also assist in changing the direction of the attack but have the disadvantage of tending to create delays in the advance to the regimental beachhead line.

73. MAIN AND SECONDARY ATTACKS

In an amphibious operation, planning main or secondary attacks is seldom possible before the actual landing and development of the enemy situation. The RCT commander is rarely justified in adhering to the conventional procedure of designating a secondary attack and assigning it a wide frontage and minimum fire support. The normal amphibious means of developing a main attack is to hold reserves readily available to exploit enemy weaknesses. Units landed on adjacent beaches may strengthen the initial assault if they are capable of mutual support. If this is not practicable initially, the attack is converged to bring assault BLT's within mutual supporting distance as soon as possible.

74. DIRECTION OF ATTACK

The RCT commander designates the BLT's direction of attack by successive objectives and, when necessary, by magnetic azimuth. He avoids complicated maneuvers with difficult changes in direction. Well-defined terrain objectives, which can be seized by a direct approach, speed the attack and simplify the coordination of supporting fires.

75. ZONE OF ACTION

a. The RCT zone of action is prescribed in the division operation order. Factors influencing the selection of a zone of action are the—

- (1) Mission of the RCT.
- (2) Depth of the attack.
- (3) Amount of fire support.
- (4) Available reinforcements.
- (5) Terrain.
- (6) Hostile resistance in the zone.

b. These factors govern the selection of the zone of action that the RCT commander assigns to each assault BLT. Boundaries of the zones extend from the beach through the regimental beachhead line.

76. SECURITY

a. The flanks are the sensitive points of a beachhead. Strong counterattacks against them during the early stages of the landing may disrupt the entire attack. The plan of attack provides for the protection of both flanks. The assignment of fire support ships for the delivery of short range protective fires is desirable.

b. The reconnaissance and security line prescribes the distance beyond the RCT beachhead line to which security detachments are pushed to prevent hostile ground observation of the beachhead and to warn of attack.

77. RESERVES

a. In an amphibious assault it is essential that a substantial force be withheld from the initial assault and kept in mobile reserve. Because communication may be difficult, the reserve is given definite plans of action before embarkation. These plans may include possible uses of the RCT reserve to—

- (1) Exploit success of the assault BLT's.
- (2) Support the assault BLT's against expected counterattacks.
- (3) Reinforce and continue the momentum of the assault BLT that has established the deepest beachhead.

(4) Occupy an assembly area within the RCT beachhead as soon as enough terrain is seized.

(5) Change the direction of attack by attacking to a flank.

b. Just as alternate RCT plans are prepared to cover all probable landing areas and situations, the reserve BLT commander must also prepare corresponding alternate plans of operation on shore. Arrangements are made for prompt transmission of orders from the RCT commander to the reserve.

78. LANDING PLAN

a. The landing plan is essentially the plan for the RCT's ship-to-shore movement. It supports the scheme of maneuver ashore and is consistent with the capabilities of ships and craft transporting the landing force. These principles govern the formulation of the landing plan:

- (1) The landing force troops are normally landed in formations permitting the assault of initial objectives to begin at the water's edge.
- (2) The mobility of waterborne troops, particularly reserves, is exploited to the maximum.
- (3) The landing plan and the scheme of maneuver ashore are interdependent and together make up an integrated plan of maneuver for the amphibious attack.
- (4) The employment of naval gunfire and air support is coordinated with the ship-to-shore movement.
- (5) Subject to the limiting conditions of hydrography and suitable landing beaches, the landing plan provides shock and power by placing the maximum combat strength ashore immediately after H-hour.
- (6) The landing plan provides enough seaward operational depth to insure the flexibility of echelonment and landing of reserves and supporting arms.

b. According to the above principles, the landing plan includes provision for these items:

- (1) Deployment of assault units while still on the water into formations suitable for assault.
- (2) Time and place of landing of all assault units.
- (3) Landing of reserves and supporting arms and services at a time and place designated by the RCT commander to conform with the development of the situation ashore.
- (4) Careful timing and coordination of the different elements of the ship-to-shore movement.

79. FORMATIONS

a. The scheme of maneuver ashore requires a special landing formation to insure that the troops are landed at the desired time and place and in the proper formation to execute the scheme of maneuver. The distribution of RCT units in the attack is governed by the—

- (1) Mission.
- (2) Enemy situation.
- (3) Weather.
- (4) Terrain.
- (5) Depth of objective.
- (6) Beach characteristics.
- (7) Availability of landing craft and vehicles.
- (8) Amount and nature of available fire support.

b. Landing on the widest front consistent with the requirements of depth and offensive power is normally desirable. A wide landing front increases the speed of the attack and causes a dispersion of the enemy's defensive fires. However, care must be taken to insure that early waves are not extended so far that they can be defeated in detail before the landing of succeeding waves.

c. The number of BLT's taking part in the assault depends on the same factors as does the formation (*a* above). The number also depends on the width of the prescribed zone of action. The RCT commander usually keeps at least the bulk of one BLT in reserve.

- (1) With a suitable beach, a formation of two BLT's in the assault and one BLT in reserve is desirable. This formation has the advantage of placing a strong force ashore initially and of providing a mobile reserve.
- (2) When attacking a strongly organized position on a narrow beach, a column of BLT's is usually preferable. This formation has the advantage of providing depth to the assault and reduces congestion on a restricted beach.
- (3) The RCT rarely lands with three BLT's in assault, unless to seize an important objective near the shore before a passage of lines by supporting units.

80. ASSAULT BLT

The landing formations within the assault BLT vary with the landing circumstances confronting them. For details on the assault BLT, see FM 60-5.

81. RESERVE BLT

Reserves are prepared to land on beaches other than those used by the assault BLT's, especially if the BLT's have made little progress or

if the beaches are under heavy fire. Provisions for such landings are incorporated in alternate joint plans. In most operations, on order of the RCT commander, the reserve BLT lands on a beach used by an assault BLT. The reserve takes advantage of the hydrographic conditions in the approach to the beach and of improvements in landing facilities already installed by the shore party.

82. REGIMENTAL HEADQUARTERS COMPANY

a. The regimental headquarters company usually lands after the assault BLT's and before the reserve. The RCT commander normally lands with the headquarters company, as well as selected members of his staff and the commanders (or their representatives) of supporting units, particularly the field artillery and shore party.

b. Liaison officers for naval gunfire, artillery, and air support initially accompany the regimental commander in a free boat. For establishing communication ashore, see paragraphs 316-319.

83. HEAVY MORTAR COMPANY

For most effective tactical use, the heavy mortar company normally lands under centralized control. Forward observers and reconnaissance parties land earlier with the assault BLT's.

84. TANK COMPANY

The regimental tank company may land under RCT control or with one or more platoons attached to the assault BLT's. The position of tanks within the landing formation depends on the mission, the terrain, the availability of suitable landing craft or ships, the enemy defenses, and the beach obstacles.

85. REMAINING TROOPS AND SUPPLIES

Subject to coordination by higher authority, troops, vehicles, and supplies of the RCT not included in the BLT's land as prescribed by the RCT commander. Usually they are landed after the first trip of boats. As permitted by the loading of the ships and the availability of landing craft, the remaining combat troops, vehicles, and supplies are given landing priorities according to the situation. Troops, equipment, and supplies embarked in the transport division, but not belonging to the RCT, land according to the priorities prescribed by higher commanders.

86. PLAN FOR SUPPORTING FIRES

a. In an amphibious operation, supporting fires are classified as either organic fires or exterior fires. Organic fires are those organic to

the RCT. Exterior fires are those that are not organic to the RCT, for example, naval gunfire and air support. Plans for supporting fires are covered in appropriate annexes. The RCT fire support plan is based on the division fire support plan and is determined in joint discussions by the regimental commander, field artillery battalion commander, naval gunfire liaison officer, air liaison officer, and BLT commanders. Factors considered are—

- (1) Landing beaches to be used.
- (2) Probable areas of greatest enemy resistance.
- (3) Scheme of maneuver ashore.
- (4) Types of available naval gunfire.
- (5) Types of available air support.

b. The RCT commander presents his requirements for support in terms of targets, timing, and intensity of fire. These requirements are based on those submitted by the BLT's in addition to those required for the support of the RCT as a whole. Special consideration is given to—

- (1) Definitely located beach weapons that can interfere with the landing.
- (2) Promontories or other critical terrain features enfilading or dominating the beach and its approaches.
- (3) Protective fires to be placed immediately behind and along the beach to cover the debarkation of the assault waves.
- (4) Emergency fires covering the flanks of the beach, especially any approaches to an exposed flank.
- (5) Night illuminating fires.

c. Fire requests are prepared with the advice of assigned liaison officers and are consolidated at division headquarters. The completed plans for naval gunfire support and air support become annexes to the RCT operation order.

d. For the fire support coordination center during planning and the use of naval gunfire, see paragraphs 188–216; for air support, see paragraphs 217–237; and for field artillery and smoke, see paragraphs 243–244 and 253–255.

CHAPTER 4

ADMINISTRATIVE PLANNING

Section I. INTRODUCTION

87. COORDINATION WITH THE TACTICAL PLAN

a. Close coordination between administrative planning and tactical planning is maintained throughout the planning phase. Changes in the tactical plan usually affect the administrative plan. Administrative planning is based on decisions relative to the mission, strength, tactical composition, and general tactical plan of the landing force.

b. The unusual requirements for special equipment and supply in the initial landing and follow-up, the restricted carrying capacity of combat loaded ships, the time required for passage and resupply, and the dispersion of initial actions ashore, demand careful coordination of administrative details. The tactical and administrative plans are prepared concurrently.

88. INTELLIGENCE NEEDED FOR ADMINISTRATIVE PLANNING

Due to the special administrative planning requirements for amphibious operations, detailed intelligence is needed. This intelligence covers all possible information concerning enemy capabilities, both initially and in later phases; hydrography, including tides, approaches to the beach, natural and artificial obstacles, and surf conditions; beach topography, including beach slope, width, and hard standing; weather, including temperature, precipitation, and prevailing winds; foreshore conditions, including availability of dispersal areas, trafficability, water sources, and the road net near the beach and inland.

89. ADMINISTRATIVE ESTIMATE

a. The purpose of the administrative estimate is to determine the course of action necessary for the administrative support of the operation.

b. During the planning phase, administrative estimates must be continuously revised to keep abreast of changes in tactical planning. Estimates are based on—

- (1) The availability and location of units, supplies, and special equipment.
- (2) Allocated transportation.
- (3) Time schedules.
- (4) Capacity of the objective area.
- (5) Capabilities of supporting agencies.
- (6) Enemy capabilities.
- (7) Weather.

c. The scope of such estimates may include the separate features and parts of the plan, or the entire administrative procedure. Modifications, adjustments, and alternate solutions of portions of the plan become necessary as a result of these estimates, but maximum effort is made to solve the administrative problem of supporting the tactical plan. If all other means fail, the tactical plan is modified to be administratively feasible.

90. LOGISTICAL CONSIDERATIONS

During logistical planning the following are considered:

- a. Tactical plans including the assault, the establishment of the beachhead, and the enemy capabilities.
- b. Forces involved, including naval and air forces.
- c. Intelligence of the objective area.
- d. Directives from higher commanders including the development of the objective and the subsequent employment of forces.
- e. Logistical situation including the organization and equipment of forces; the basic planning factors and experience data; the availability of shipping, supply, and service support; and the disposition of logistical facilities.
- f. Time and space factors including ship turn-around, order of movement, and shipping time.

91. PRINCIPLES OF SUPPLY

- a. Logistical planning is based on the following principles:
 - (1) *Supply is a command responsibility* and cannot be delegated.
 - (2) *Supply and tactics are inseparable*; both plans are prepared concurrently and are closely coordinated.
 - (3) *Supply plans are simple and continuous*. The supply plan develops from the beginning of the operation until its conclusion, and is adjusted constantly.
 - (4) *Supply plans provide flexibility and mobility*. Logistical planning considers all possible developments and provides for effective support in spite of enemy action, weather conditions, or tactical developments and decisions. Mobility is

gained by distributing supplies laterally and in depth, and by keeping combat vehicles loaded.

- (5) *Impetus of supply is from the rear.* Commanders in all echelons keep adequate supplies available to lower units at the time and places needed.
- (6) *Adequate supplies are provided without creating an immobilizing surplus.* Individuals and units are provided with enough supplies to carry out their assigned missions. The greater the amount of supplies carried by units and individuals, the more their mobility is reduced. A compromise is made to attain a reasonable certainty of supply and still retain tactical mobility.
- (7) *Combat elements are relieved of unnecessary administrative details.* As far as possible, requirements of lower units are anticipated and needed supplies are furnished without request.
- (8) *Supplies and transportation are conserved.* Supplies are safeguarded to prevent loss, pilferage, and waste. Transportation and equipment are conserved for essential tasks. Supply economy is rigidly enforced.

b. The extent to which any or all of these principles are emphasized in logistical planning is governed by the particular circumstances surrounding each individual operation.

92. LOGISTICAL REQUIREMENTS

a. Logistical planning of the RCT provides for the—

- (1) Movement of the RCT to the embarkation area.
- (2) Procurement of equipment and supplies.
- (3) Preparation of equipment and supplies for embarkation.
- (4) Embarkation of troops, equipment, and supplies.
- (5) Organization of the beach support area and operations of the regimental shore party.
- (6) Landing of supplies, equipment, and service units.
- (7) Care and evacuation of casualties.
- (8) Control and landing of emergency supplies.

b. Planning is based on directives and orders from higher commanders. However, many of the details are left to the RCT commander.

93. SEQUENCE OF PLANNING

Logistical plans for the RCT should be made in this sequence :

a. A general plan for the supply of the RCT until division or higher commanders assume control of supply facilities ashore.

- b. The establishment of general priorities for the loading of vehicles and supplies.
- c. The computation of weight and cubic displacement of equipment and supplies.
- d. The preparation of detailed loading plans.
- e. The preparation of the billeting plan for the embarkation teams.
- f. The orders for movement to the port of embarkation.

94. SPECIAL EQUIPMENT

Amphibious operations usually require assault units to make changes and additions in standard equipment and basic allowances. These changes are made because of the nature of the operation and the cargo limitations imposed by the ships and craft. Flame throwers, submachine guns, and demolition equipment are usually added. The substitution of small vehicles for larger vehicles is normal.

95. SHIPPING REQUIREMENTS

Shipping requirements are based on the over-all capacity required to carry the landing force personnel, equipment, and supplies necessary to accomplish the landing force mission. After shipping requirements have been determined, adjustments in the forces to participate may be necessary due to the amount and type of shipping available.

Section II. SUPPLY

96. GENERAL

The RCT commander is responsible for the supply of his RCT. Higher commanders usually specify the amounts of each class and item of supply to be taken with each assault RCT.

97. REQUIREMENTS

Amphibious operations require special equipment. Additional reserve quantities of supplies are required to support the operation until normal land support is established ashore. This causes the types and quantities of supplies required in the assault phase of an amphibious operation to be greater than in a normal land offensive.

98. ECHELONS

Supplies of all classes are divided into echelons to facilitate the coordination of loading and unloading and to provide adequate initial supplies for units landing on separate beaches. While each echelon is planned and loaded as a separate and distinct entity, the situation on landing may result in the simultaneous unloading of several eche-

lons. These echelons are classified as individual reserves, initial reserves, beach reserves, and landing force reserves.

a. Individual Reserves. This echelon consists of water, ammunition, rations, fuel, and medical supplies to sustain all landing force elements for one or two days. The individual reserves for the RCT are loaded aboard the ships carrying the RCT. Part of these supplies are mobile loaded on vehicles scheduled to land in later assault waves. The remainder is placed in accessible holds to be issued to the assault troops before they debark.

b. Initial Reserves. This echelon consists of supplies of all classes for all landing force elements for three to five days. The initial reserves for each RCT are normally placed aboard the ships transporting the team elements. Those initial reserves that are mobile loaded may be sent ashore as soon as the battalion shore parties are prepared to receive them. Those supplies that are palletized or bulk loaded are not landed until the regimental shore party elements, with handling equipment, are ashore and ready to receive them. If strong beach opposition is anticipated, some of these reserves may be placed in designated landing craft or landing vehicles returning from the first trip to the beach. These boats and vehicles report to a designated control vessel where they form a floating dump of emergency supplies available on call.

c. Beach Reserves. This echelon consists of supplies of all classes for use by all landing force elements for five to ten days. These reserves provide the continuity of supply during temporary supply interruptions caused by the weather or by enemy action. Usually the beach reserves for each RCT are prorated aboard the ships of the transport division carrying the RCT. They are placed in a lower priority than individual and initial reserves and normally are not unloaded until the regimental shore party is prepared to receive them.

d. Landing Force Reserves. This echelon consists of supplies of all classes for all landing force elements for 30 days. These supplies may accompany the assault convoy in cargo ships (AKA's), or they may be shipped in follow-up convoys arriving between D plus 5 and D plus 10.

99. CLASS I SUPPLIES

a. Rations. Emergency rations are prescribed for all elements during an assault landing. The need for placing individual reserves on personnel in the assault RCT's is carefully considered. Generally, each individual carries one or two rations. Vehicle crews carry their rations in their vehicles. Initial reserves of rations for each RCT are loaded with assault troops and are landed after the troops are ashore.

b. Water. The Navy is responsible for supplying water to the RCT en route to the objective. Normally, each individual in the assault

lands with two filled canteens. All 5-gallon water cans are taken ashore filled. If water sources are not available ashore, empty water cans are either returned to the transport for refilling, or are refilled from tanks installed in landing craft. Water purification tablets to be used in an emergency are issued to all personnel.

c. Special Items. Such items as salt tablets, water purification tablets, malaria suppression tablets, insect repellents, and seasick tablets are issued as needed. Instructions for their use are included in the RCT orders.

100. CLASS II SUPPLIES

Individual clothing and equipment to be carried by all personnel are given in orders from higher commanders. Generally an initial reserve for 5 to 10 percent of the personnel in the RCT is loaded with the RCT. Clothing is bundled by sizes; individual weapons and equipment by type. Each bundle is waterproofed and is sent ashore after the assault waves to replace clothing and equipment lost during the landing.

101. CLASS III SUPPLIES

All vehicles are embarked with gasoline tanks filled to 75 percent capacity, and with filled crankcases. In addition, extra 5-gallon cans of gasoline, extra oil, and lubricants in issue containers accompany each vehicle. Spare cans are placed in the body or cab of the vehicle to prevent damage and spilling of contents during the loading and unloading. Aboard ship spilled lubricants and fuels are a serious fire hazard.

102. CLASS IV SUPPLIES

a. For the RCT this class of supply usually consists of engineer and medical items required in the assault. Additional items of engineer equipment required for amphibious operations are prescribed by higher commanders. They accompany the regimental shore party or attached engineer units. Priorities are assigned in RCT landing plans for additional heavy equipment to be used for inland construction.

b. Medical supplies are carried by medical troops. Additional types and quantities to be taken ashore in the assault are prescribed in the RCT administrative order. The plans further provide for emergency items to be available on call.

103. CLASS V SUPPLIES

a. This class of supply includes all ammunition, demolitions, and explosives required in the assault. Normally, ammunition to be issued individuals and weapon crews just before debarkation is placed in an accessible hold or locker aboard ship.

b. In addition to the ammunition carried by the individual, there are floating dumps, mobile dumps, cargo prepared for selective unloading, and bulk cargo. Floating dumps consist of all classes of supplies, including ammunition, loaded on landing craft or vehicles and held offshore awaiting call. Mobile dumps are made up of balanced loads of ammunition placed on unit vehicles for dispatch to the beach as soon as possible after the RCT assault elements have landed. Ammunition is the main class of supply loaded on assault shipping for selective unloading by type and quantity desired.

Section III. TRANSPORTATION

104. GENERAL

Transportation requirements for an amphibious operation are given special consideration. A detailed analysis is made of the available cargo space, the terrain of the objective area, and the extent of operations inland. This often requires the substitution for or the reduction of organic motor transport for the assault.

105. PHASING OF MOTOR TRANSPORT

a. The decision as to what motor transport accompanies the assault echelon is based on the available cargo space, the terrain, and the logistical requirements to support the tactical plan. Emphasis is placed on weapons carriers, command vehicles, amphibious wheeled and tracked vehicles, bulldozers, and other mechanical equipment required to get supplies and equipment on the beach. The number of large cargo vehicles accompanying the assault echelon is limited to those needed to support the assault troops.

b. The remaining motor transport is loaded on follow-up convoys according to the priority and available cargo space. Priorities are based on the estimated situation in the beachhead and are extremely flexible to allow for unforeseen developments. Strictly administrative motor transport is given the lowest priority. Motor transport scheduled for follow-up convoys is used to move troops, supplies, and equipment within the staging area and to the ports of embarkation. This makes the vehicles accompanying the assault echelon available for early waterproofing and loading.

106. TRAFFIC CONTROL

a. The operation and control of transportation afloat is a Navy responsibility. The naval beachmaster is the link between the shore party and the forces afloat. The beachmaster maintains communication with naval control vessels at sea and directs all boat traffic (pars. 272-295).

b. The control of DUKW's is important. These trucks are not capable of unlimited cruising at sea, and therefore are not sent out to circle while awaiting a load. They are held on shore in dispersal areas until dispatched to a specific ship for cargo. DUKW company and battalion organizations are capable of handling their own movement problems ashore. The shore party commander gives dispatch instructions to the DUKW company representative. These instructions designate the ship from which the DUKW is to draw cargo. In some situations the DUKW's and small craft are directed from shore to a control boat sited near the cargo ships. This control boat then diverts them to a ship that is ready for unloading by DUKW's or small craft.

c. The use of transportation at the beachhead begins with the debarkation of troops and the unloading of cargo from ships to landing craft or lighters. In the planning phase, transportation in the landing area requires a consideration of traffic control and circulation.

d. The importance of effective traffic control and circulation ashore is increased by the—

- (1) Probability of landing where no road system exists or where existing roads are parallel to the beach.
- (2) Lack of ground reconnaissance before landing.
- (3) Concentration of traffic in the beach area, which is the terminus of land and seaborne traffic and concurrently the center of the supply and transportation system.

e. The RCT commander provides effective traffic control and circulation by prescribing, in administrative instructions, steps for traffic control, manner of initiation in the early part of the landing, responsibility for enforcement, initial main supply route, road development, capacity of bridges, minimum road standards, and blackout speed restrictions.

f. In the first phases of a beach operation, most of the traffic is one-way inland and one-way return. Gradually, the amount of supply traffic and returning empties (LVT's, DUKW's, and trucks) increases. When the majority of combat troops have pushed inland, the centralized shore party control initiates a system of traffic circulation. No new principles are involved, but techniques may have to be modified. Plans are carefully worked out in detail and rigidly enforced. Traffic is kept moving and dispersed as much as the terrain and road net permit. Care is taken not to give the enemy dense, immobile targets.

g. The best and shortest routes from the beach to the supply dumps are assigned to *loaded* DUKW's and trucks. The returning empties are routed over alternate roads, even if these roads are longer. On most beaches, certain areas are suitable for DUKW landings. A reasonably smooth, firm, and gradually sloping strip of beach is re-

quired. These locations may have to be improved by bulldozing and by using mats.

h. Having organized the landing areas, the next step is to tie in the beach exits with the road net, and to establish DUKW and truck parts to meet the fluctuating demand for supply debarkation. The engineer reconnaissance or traffic survey indicates which roads are suitable for two-way traffic and which roads are suitable for one-way traffic.

i. In planning traffic circulation, primary consideration is given to the routes for tactical traffic and units being landed and moved inland. The route for trucks and DUKW's from LST's and landing craft to the dumps and return is plotted next. Finally, conflicts are checked, administrative and tactical traffic is coordinated, and the traffic plan is completed showing the direction of movement permitted on all one-way roads. Two-way roads are not limited unless it benefits all types of traffic. Cross traffic is reduced to a minimum.

j. In executing a traffic plan on the beach, each exit from the beach has a DUKW or truck control station where the cargoes and destinations are verified and the drivers instructed on the route to follow. On returning, each driver reports to a vehicle assembly area for his next mission. There may be one or more truck or DUKW parks established in the RCT area. New drivers are given a simplified sketch to show the route from beach to dump and return.

Section IV. MAINTENANCE

107. GENERAL

Normal maintenance and repair facilities usually are not available in the beachhead until the later phases of the landing. To overcome this difficulty, all vehicles and equipment are brought to a high state of repair before embarkation. In addition, adequate spare parts are carried in assault shipping, and plans are made for repair and maintenance facilities at as early a time as possible.

108. MAINTENANCE PERSONNEL

It is desirable for all RCT maintenance personnel and equipment to accompany the assault echelon. When this is not possible, maintenance personnel accompanying the assault echelon are selected for their ability to provide a high state of maintenance with a minimum amount of personnel and equipment. In some instances, drivers and other personnel are given special maintenance training to supplement the maintenance personnel.

109. MAINTENANCE INSTALLATIONS

a. Logistical planning provides for both near-shore and far-shore maintenance. Adequate near-shore equipment and personnel are

made available in the embarkation areas to make sure that all equipment and assault motor transport are in the proper state of maintenance and are waterproofed in time to be loaded on schedule.

b. Waterproofing is a vital part of embarkation planning. All vehicles, weapons, and medical and signal equipment are waterproofed to protect vital operating parts and to prevent failures and breakdown in the beachhead area. Waterproofing is normally done by specially-trained unit personnel under the supervision of ordnance personnel. Waterproofing materials are made available aboard ships to replace materials removed for repairs and maintenance en route.

c. Maintenance personnel go ashore soon after the assault troops land. They provide the necessary repairs and maintenance or assist in dewaterproofing vehicles and equipment.

d. Dewaterproofing areas are established. Tanks, vehicles, and other equipment are dewaterproofed under the supervision of trained personnel as soon as practicable after landing. Dewaterproofing is necessary if vehicles and other equipment are to operate efficiently. Vehicles that have been immersed in salt water receive prompt and continuous organizational maintenance. Units establish and maintain rigid vehicle inspection.

Section V. MEDICAL SERVICE

110. EVACUATION

One platoon from the clearing company, ambulances, and a small supply detachment are generally attached to the RCT from the division medical battalion. As far as possible, the impetus of medical action is from the rear. Higher echelons are responsible for evacuating casualties from the beach or aircraft landing areas. The RCT is responsible for evacuating its casualties to the beach or aircraft landing areas. Plans and orders for evacuation and hospitalization are made to conform with administrative instructions from division.

111. SERVICE

The primary mission of the RCT medical service is to evacuate casualties within the RCT and to provide medical care for casualties retained within the RCT, until they can be evacuated to a higher echelon. The secondary mission is to supervise and direct sanitation.

112. SUPPLY

Organizational medical equipment and supplies of the RCT are combat loaded and are landed with the assault echelon. Critical medical equipment and supplies are delivered ashore by hand-carrying and by loading vehicles to the maximum. Every medical soldier carries

additional individual medical supplies to meet operational requirements. Critical items of medical supply are loaded so that they are immediately available on call. For details on the organization and functioning of the RCT medical service, see paragraphs 256-271.

Section VI. SERVICES

113. EVACUATION OF DEAD AND GRAVES REGISTRATION

Within the RCT area the evacuation of the dead is the same as in normal ground combat. The dead are taken back to the collecting point operated by the regimental graves registration section (par. 125).

114. EVACUATION OF MATÉRIEL

Within the RCT area the evacuation of matériel is similar to that in normal ground combat. Items of equipment that cannot be repaired and returned to units by the RCT service elements are collected and held until they can be turned over to maintenance units of higher echelons.

115. SALVAGE AND ENEMY MATÉRIEL

Prompt salvage and repair of organic equipment and use of captured or abandoned enemy matériel greatly supplement landed supplies and equipment. The importance of salvaged and captured supplies increases with the distance of the objective from the bases of supply. Special training in collection, repair, and use of supplies saves time and cargo space. Items that cannot be used are collected and held until higher commanders assume control. The repair and use of captured or abandoned enemy motor transport is especially important.

Section VII. MANAGEMENT

116. PROCUREMENT AND CONCENTRATION

The procurement and concentration of supplies and equipment is coordinated with the embarkation schedules to give the supply agencies enough time to place supplies at the ports. This coordination also gives the embarkation officers time to prepare their loading plans and to load the supplies and equipment. Supply orders contain exact instructions for packing, crating, palletizing, waterproofing, marking, and shipping. Supplies are assembled by the following methods:

a. Delivery to Units in Concentration or Staging Areas. This method is normally used for organizational equipment and for maintenance material for technical equipment.

b. Shipment to Port for Units or Individuals. This method is often used for last-minute items that might indicate the overseas destination.

c. Shipment to Port for Specific Ships. Rations and common items of maintenance are generally handled this way.

d. Shipment to Port or Ship Group. Ammunition, bombs, gas, oil, and similar supplies are shipped this way.

e. Shipment to Port in Bulk. Last-minute items for distribution normally are shipped this way. Some examples are maps, intelligence supplies, class IV supplies, and at least a portion of the ammunition. To ease the loading, bulk shipments may be divided into identical lots, each containing a proportionate part of all items in the shipment.

f. Ship Assembly Areas. When the preparation of supplies for loading begins before the development of definite shipping and loading instructions, supplies may be assembled and the amounts required for each ship placed in separate lots.

g. Division by Convoys. Supplies may be divided for shipment on following cargo convoys or on fast cargo vessels accompanying the main movement.

117. LOADING

a. All assault troops with their organizational equipment and supplies are combat loaded. Responsibility for loading ammunition and other supplies follows the chain of command. Unit commanders verify that items essential to starting combat are loaded and are readily accessible.

b. Unless early support by succeeding convoys is impossible, dispersion of supplies is accomplished by loading only enough quantities for initial RCT use. The supplies are distributed among ships and craft so that each assault BLT has with it enough to be self-sustaining during the initial stages of the landing, and so that the loss of one or more vessels does not cause vital shortage for any of the remaining elements of the RCT. A suggested type of supply loading includes—

- (1) Individual and initial reserves loaded with assault BLT.
- (2) Beach reserves loaded with low priority on BLT ships and on the transport division's assault cargo ships.
- (3) Landing force reserves loaded on the cargo vessels in the assault convoy. Part or even the bulk of this reserve may be carried in a support element planned for immediate follow-up. As far as possible, all supplies loaded on landing ships are mobile loaded.

118. UNLOADING

a. The Navy is responsible for unloading the troops, supplies, and equipment in the prescribed priorities from assault ships to landing

craft or docks; for providing and operating necessary craft; and for assisting the Army with unloading details (fig. 9).

b. The Army is responsible for loading slings and cargo nets aboard transports and cargo ships; unloading cargo nets and slings into landing craft, amphibious trucks, and other craft or on docks; providing and operating amphibious vehicles; providing, operating, and landing vehicles used to unload landing ships and craft; and unloading supplies at beaches and supply point sites. Aboard transports, cargo vessels, and landing ships, the regimental embarkation officer supervises the priorities for unloading.

119. BEACH OPERATIONS

a. Each BLT establishes its own supply dumps immediately inshore of the beach upon which it lands. Regimental and divisional supply dumps are established farther inland from the beach to provide the adequate dispersal areas for the larger quantities of supplies. At the earliest practicable time, it is desirable to establish divisional supply dumps containing beach reserves. If the advance has progressed far enough, they are established immediately after bulk initial reserves are placed in RCT supply dumps (fig. 10).

b. Early in the operation, resupply of all units is made directly from beach supply dumps. After the landing of the assault battalions, one or more beaches in the RCT area are organized to receive supplies. As the attacking elements proceed inland, supply dumps are established, and supplies are moved to these points when transportation becomes available. When the shore party is supplemented by service personnel and vehicles not needed on the beach, such personnel establish and operate the supply dumps. When not so supplemented, the senior combat unit ashore provides personnel and vehicles to move the supplies into inland supply dumps and uses its organic supply elements with necessary reinforcement to issue the supplies. It is desirable to avoid drawing on division service units for augmentation of the shore party and operation of beach dumps.

Section VIII. PERSONNEL

120. GENERAL

a. On receipt of the directive for an amphibious operation, the RCT S1 starts planning the personnel activities. After studying the situation and consulting with other staff officers, he estimates the over-all personnel requirements. After this, he prepares a detailed personnel plan for the operation.

b. The planning and conduct of an amphibious operation by an RCT involves all the personnel activities normal to ground combat. This

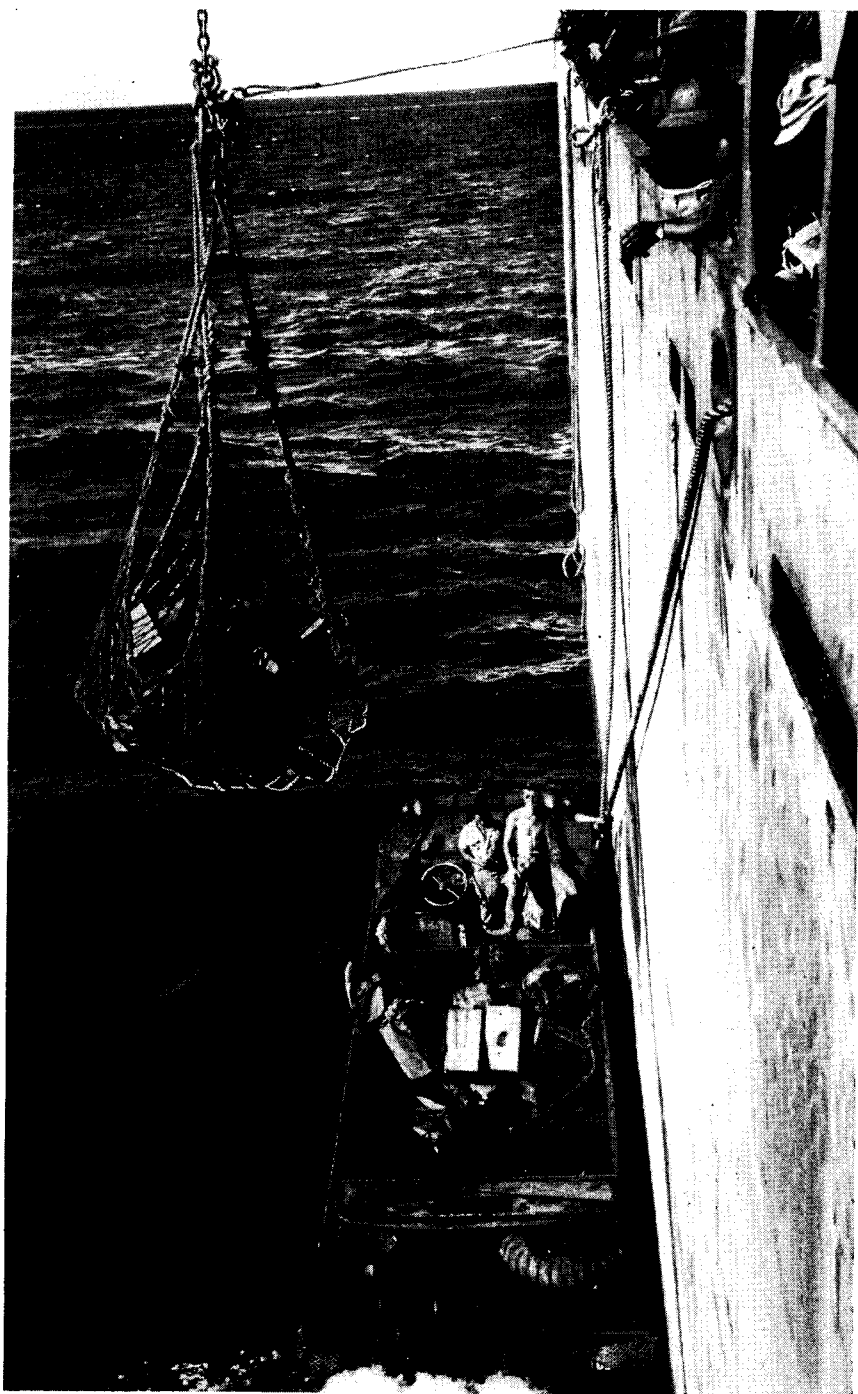


Figure 9. Unloading from transport into DUKW.



Figure 10. Supply dump in operation.

is true whether the unit is operating independently or is a part of a larger force. In this type operation, errors in planning are especially difficult to correct after the operation is launched. Therefore, greater emphasis is placed on detailed planning. For a discussion of personnel functions, see FM 7-40 and FM 100-10.

121. STRENGTHS, RECORDS, AND REPORTS

The S1 keeps informed of the strength of all organic and attached RCT units. He uses the statistics compiled to determine replacement requirements and to estimate the effective RCT strength on the embarkation date. He gives this estimate to higher commanders and to other regimental staff officers for their use in preparing shipping requirements, loading plans, and tactical plans. He determines the procedure for submitting individual and unit personnel records and reports to be used during the operation. On the embarkation date, the

S1 also prepares and provides corrected passenger lists to the requiring agencies.

122. REPLACEMENTS

a. Because of the peculiarities of amphibious operations, particular attention is given to estimating personnel losses and replacement requirements. The main peculiarities are transportation limitations, initial lack of secure areas to operate normal replacement supply, and large casualty rates in the relatively small assault forces engaged in the early stages. Each new operation has conditions peculiar to itself that affect the casualty rates of the troop strengths committed. Therefore, casualty experience of past operations can be used only as a rough guide.

b. To prepare the personnel casualty estimate, the S1 coordinates closely with the other regimental staff officers. From the S2 he obtains the enemy situation, enemy capabilities, and operating conditions that can be expected in the objective area. From the S3 he obtains the plans for the use of the units and the probable duration of the operation. From the S4 he obtains the embarkation schedule, mode and time of travel, and plans for evacuation and medical support. He then estimates the casualties for the operation by applying the latest experience factors, modified to conform to anticipated conditions.

c. The S1 must constantly take steps to determine what men are physically and mentally unfit for combat and eliminate or reassign them. The S1 makes the maximum effort to obtain replacements for these losses early enough to permit their thorough training.

d. An attempt is made to obtain an overstrength during training, especially in the assault units. The size of this overstrength depends on the specific operation, the availability of manpower, and the ability of the RCT to administer and train it. The overstrength is desirable to make sure that all units embark at or above authorized table of organization strength and to provide a trained, previously oriented pool of replacements during the initial phases of the assault.

123. LAW AND ORDER

a. If there are any prisoners in confinement within the RCT, prompt action is taken to dispose of their cases or to have them transferred out of the unit.

b. The S1 prepares a plan for straggler control in the beachhead area. During the initial stages of the landing, the shore party may be used to gather stragglers and to return them to their organizations through a straggler collecting point established on or near the beach. On the arrival ashore of the division military police, a straggler line or straggler patrols are established behind the assault elements.

124. PRISONERS OF WAR

The S1 makes plans for the collection, search, and segregation of prisoners of war. This requires coordination with the other staff officers to estimate the expected number of prisoners of war and to determine if any troops, in addition to the security platoon, will be needed for guard duties. Provision is made for rations, medical care, and transportation. Evacuation presents the greatest problem. If the RCT is operating as a part of a larger force, the prisoners of war are sent to a prisoner of war collecting point operated by the division. If the RCT is operating alone, the prisoners of war are evacuated to an RCT enclosure or to a vessel designated and equipped for that purpose. The S1 coordinates with the S2 on the practicability of interrogation before evacuation. Plans are made for the feeding, medical care, and evacuation of our own or allied prisoners of war who may be recovered in the RCT area.

125. BURIALS AND GRAVES REGISTRATION

Two contingencies are considered relative to burials and graves registration. If the RCT is part of a larger force making the landing, it is only necessary to evacuate the dead to a collecting point operated by division burial and graves registration personnel. If the RCT is acting independently, the graves registration personnel are attached to handle evacuation either to a ship designated for that purpose or to a temporary cemetery established near the beach.

126. MORALE

a. All morale activities receive particular attention before and during an amphibious operation to maintain a high state of morale. Maximum facilities are made available to the troops for rest, recreation, and religious services before embarkation. This includes quotas to leave or rest centers, bands, movies, shows, athletics, Red Cross clubs, and canteens. Enough post exchange supplies are procured to supply all needs. Available personnel are recalled from leave, detached service, and temporary duty in time to permit thorough training. Arrangements are made for disposition of unit funds. Adequate facilities are made available for the disposition of personal funds through postal money orders, allotments, soldiers' deposits or personal transfer accounts. Arrangements are made through the division finance officer to exchange currency if a different type currency is required in the target area. For security reasons, this currency exchange takes place while en route to the objective.

b. It may be necessary to suspend outgoing mail several days before the sailing date for security reasons. This need not be publicized, and

the mail can be held at the army post office. Maximum effort is made to continue incoming mail service until embarkation and to reestablish it as soon after the landing as transportation facilities permit. Provisions are made to provide recreation and religious services aboard ship en route to the target area. All the normal morale supporting activities, particularly mail, post exchange, awards and decorations, and religious services are reestablished in the objective area. The fact that the operation is successful may be exploited to build up the morale of the troops.

127. CIVIL AFFAIRS AND MILITARY GOVERNMENT

a. The type of government existing in the target area, the attitude and health of the civilian population, and the general economy are factors influencing the military government policies of the landing force. Information on these conditions is available from the S2.

b. Higher commanders publish instructions regarding the control of any civilians encountered in the landing area. These instructions are disseminated to all personnel. Normally, military government personnel land with or immediately behind the assault elements. They function to control civilians in the landing area and to reestablish law and order as soon as hostilities cease or move further inland. Evacuation of civilians from the beachhead is normally impracticable. Therefore, to prevent their interference with military operations in the initial phase, they are held in place by military police, local police, or combat troops. As the advance continues, a plan for evacuation from the front lines and for control of all civilians is put into effect. This plan includes provisions for shelter, rationing, and medical care. If military government personnel are not provided, the S1 arranges for the personnel to perform these functions.

128. PROCEDURES

Personnel procedures are the same as in normal ground combat.

129. INTERIOR MANAGEMENT

a. The S1, with other staff officers, arranges for an advance party or quartering party for the embarkation area. He establishes a command post to control rehearsals as well as the actual embarkation. In coordination with S3 and S4, he establishes liaison with the transport commanders and arranges for billeting and messing while on board.

b. In amphibious operations it is desirable to move the headquarters to the objective area in two echelons. The command post moves with the assault shipping while the rear echelon moves later. When there is danger of attack, the command post afloat is divided into a primary and secondary group on different transports. The composition of

these groups is determined by the commander. The primary group controls the units during the landing and until a command post is established ashore. The secondary group lands as early as practicable and establishes the command post ashore. After this command post is established the primary group lands, and the command post afloat is closed.

130. CIVILIAN EMPLOYEES

a. Directives concerning the use of civilian employees are published by the division commander. Preembarkation security considerations may require that action be taken to control or restrict the movements of civilians used by the RCT so that they will not endanger the security of the operation.

b. Plans also may be made for the use of civilian personnel found in the beachhead area to handle supplies, to evacuate the dead, and to assist in constructing installations for the use of the landing forces. Their use depends on the military government plan.

131. ORDERS AND INSTRUCTIONS

When the RCT is operating as a part of a larger force, many of the duties of the S1 resolve themselves into carrying out the directives of higher commanders. However, when an RCT is operating as a separate unit, it is necessary for the S1 to consider all of the personnel functions to determine if they apply. If they do, it is his responsibility to make an estimate of the situation and to formulate plans and orders to carry them out. Those items suitable for publication in order form are included in paragraph 4 of the operation order, or in a separate administrative annex to the operation order.

CHAPTER 5

EMBARKATION AND VOYAGE

Section I. EMBARKATION RESPONSIBILITIES

132. JOINT RESPONSIBILITIES DURING EMBARKATION

a. Embarkation is a joint responsibility of the naval and landing force commanders. The landing force commander provides the personnel for handling cargo and troops on the dock, beach, and ship. The naval force commander provides the winchmen, hatch tenders, cargo handling gear, and lighterage. Control is established and maintained by—

- (1) Liaison between parallel naval and landing force commanders.
- (2) Maximum decentralization of responsibilities and tasks.
- (3) Establishing a single control office on each command level for coordination of the embarkation.

b. The service agency responsible for the operation of the port of embarkation provides dock equipment, technical assistances, dunnage, fingerlift trucks, and other loading aids. In the absence of such a service agency the senior landing force commander provides these facilities.

133. NAVAL RESPONSIBILITIES IN EMBARKATION

a. The attack force commander—

- (1) Allocates shipping to transport groups.
- (2) Announces general loading schedules.

b. Transport division commanders—

- (1) Supervise the loading and dispatching of shipping which belongs to the transport division.
- (2) Approve the loading plans for vessels of the transport division group.

c. The commanding officer of each vessel is responsible for the safety and performance of his vessel relative to—

- (1) Loading and its relation to stability, trim, and capacity.
- (2) Securing cargo to prevent shifting.
- (3) Protection against fire and explosions.
- (4) Interference with ship's combat readiness.
- (5) Required beaching trim (if landing ship).

- (6) Loading to support the landing force scheme of maneuver.
- (7) Facilities and arrangements for rapid and selective unloading.
- (8) Loading of vessel according to approved loading plans.
- (9) Providing winchmen, hatch tenders, boats and crews and such other loading aids as he may have at his disposal.

134. ARMY RESPONSIBILITIES IN EMBARKATION

- a.* The landing force commander—
 - (1) Compiles lists of troops, equipment, and supplies needed to accomplish the mission, and submits the lists to higher commanders for approval.
 - (2) Allocates units to assigned shipping.
 - (3) Procures the supplies and equipment required by the tactical plan.
 - (4) Prepares troops, equipment, and supplies for embarkation.
- b.* Lower unit commanders of the landing force—
 - (1) Procure supplies and equipment to support the tactical plan.
 - (2) Allocate their units to assigned shipping.
 - (3) Prepare troops, supplies, and equipment for embarkation.
 - (4) Move troops, supplies, and equipment to embarkation points.
 - (5) Coordinate and supervise embarkation.
- c.* Besides the responsibilities listed in *b* above, the commanding officer of troops for each vessel—
 - (1) Prepares detailed loading plans for the vessel.
 - (2) Arranges for billeting and messing troops aboard ship.
 - (3) Embarks troops, supplies, and equipment assigned to the vessel according to the approved plans.

135. PORT RESPONSIBILITIES IN EMBARKATION

The commander of a port of embarkation is responsible for the operation of the port and provides—

- a.* A staging area for troops.
- b.* Dock, beach, or stream embarkation points.
- c.* Cargo assembly areas with slots or sub areas so posted that they can be identified with the ship and embarkation team which they serve.
- d.* Vehicle preparation and assembly areas with slots or sub areas so posted that they can be identified with the ship and embarkation team which they serve.
- e.* Supply depots or dumps.
- f.* Rail and vehicle transportation.
- g.* Loading aids; for example, fingerlift trucks and dunnage.
- h.* Technical assistance in loading.
- i.* A communication net connecting all port installations.

j. Plans for coordinating the movement of personnel, vehicles, and vessels to expedite embarkation.

Section II. EMBARKATION PLANS AND ORDERS

136. ORDERS FROM HIGHER COMMANDERS

The RCT is embarked according to plans based on orders received from the division commander. These orders specify the—

- a.* Composition of the RCT embarkation group.
- b.* Transport division to embark the RCT embarkation group.
- c.* Types and amounts of supplies to be embarked.
- d.* Special equipment needed for the mission.
- e.* Embarkation area.
- f.* Schedule for movement to the embarkation area.

137. SEQUENCE OF EMBARKATION PLANNING

The sequence of planning for the embarkation of the RCT is—

- a.* Detailed organization of embarkation teams.
- b.* Assignment of troops and material to each vessel.
- c.* Preparation of detailed loading plans for each ship.

138. EMBARKATION PLAN

a. The RCT embarkation plan, which is the basis for the embarkation order, is prepared for the RCT commander by the Group Embarkation Officer. The Group Embarkation Officer also supervises the loading and unloading of troops, equipment, and supplies. The following are included in the plan:

- (1) Task organization for embarkation.
- (2) Allocation of units to assigned shipping.
- (3) Allocation of supplies and equipment to individual vessels.
- (4) Instructions for preparing supplies and equipment for embarkation, including palletization and waterproofing.
- (5) Communication for embarkation.
- (6) Traffic circulation and control system for embarkation.
- (7) Instructions for preparing embarkation areas and points for loading.
- (8) Designation and allocation of cargo assembly areas and vehicle staging areas.
- (9) Movement of supplies and equipment to embarkation areas of points, including method of transportation, schedule of movement, and control measures.
- (10) Movement of advance parties to embarkation areas or points, including the method of transportation and schedule of movement.

- (11) Establishment of an embarkation control office, including the time it is to be established, its location, and its functions.
 - (12) Establishment of security posts in the embarkation area.
 - (13) Assignment of tasks relative to movement and loading of supplies and equipment.
 - (14) Availability and assignment of mechanical loading aids.
 - (15) Instructions for loading.
 - (16) Movement of personnel to embarkation areas or points including the method of transportation and schedule of movement.
 - (17) Instructions for troops in the marshalling area.
 - (18) Instructions for embarkation of personnel.
- b. For the BLT embarkation plan, see FM 60-5.

139. RCT EMBARKATION ORDER

The RCT commander's embarkation order specifies dates, times, routes, and movements for the embarkation of personnel, supplies, and equipment. The embarkation order has no prescribed form; generally, it follows the form given for the operation order in FM 101-5. The details are the same as those considered in embarkation planning. The embarkation order is supplemented by memoranda, standing operating procedures, and verbal instructions. Where pertinent, reference is made to these in the order (app. IV).

140. ANNEXES TO THE EMBARKATION ORDER

a. If the procedure or instruction for embarkation is too detailed or technical, or if maps, sketches, or overlays are needed, they are prepared as annexes to accompany the embarkation order. The annexes may include—

- (1) Task organization.
 - (2) Intelligence.
 - (3) Embarkation schedule.
 - (4) Embarkation area overlay.
 - (5) Administrative instructions.
 - (6) Calendar of events.
 - (7) March order.
- b. See appendix IV for other annexes to the embarkation order.

Section III. ORGANIZATION FOR EMBARKATION

141. GENERAL

a. The reinforced infantry division is embarked in a transport squadron and is normally organized into five embarkation groups. Each group is embarked in a transport division or similar naval organization.

b. The embarkation groups are based on the division organization for landing, which includes the regimental combat teams, division artillery, shore party, and division troops. Corps or higher echelon units also may be assigned to the division for transportation. The three embarkation groups formed around the RCT's are commanded by the RCT commanders (fig. 11). The division commander designates the commanders of the other two groups.

c. The embarkation organization does not include any division rear echelon remaining behind to be displaced to the objective area after the landing and assault phases.

d. Embarkation is a command responsibility. The commander is assisted by specially trained embarkation officers. These staff officers plan, supervise, and accomplish embarkation. Normally, when an officer is detailed as an embarkation officer, he is immediately relieved of all other duties and this detail becomes his primary function. This is equally applicable to his assistants.

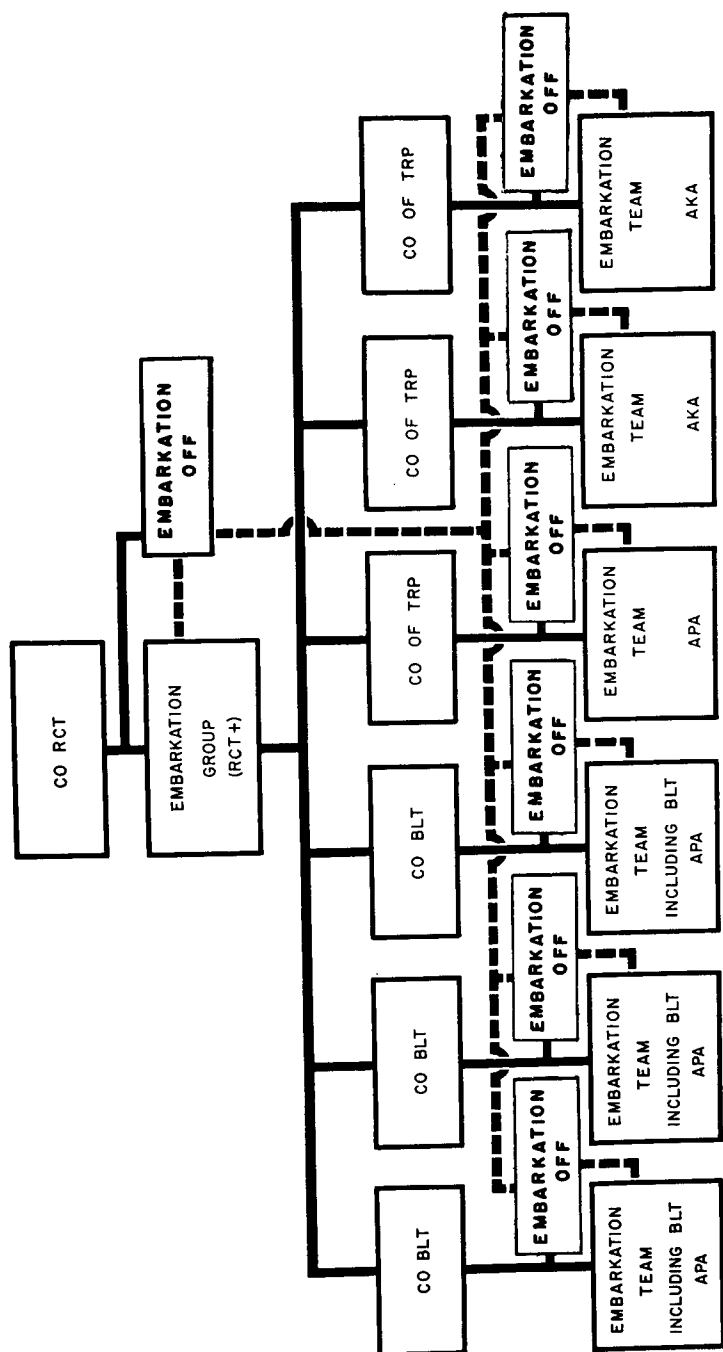
e. The division embarkation officer is an assistant to the division G4. He coordinates and supervises the embarkation of the reinforced infantry division. The RCT embarkation is under the regimental embarkation officer who serves as group embarkation officer for the embarkation group based on his RCT. He is an assistant to the regimental S-4. Group Embarkation Officers are also designated for other embarkation groups. Battalion Embarkation Officers plan and supervise loading at their level, working through Team Embarkation Officers designated for each ship. The Team Embarkation Officer is normally selected from the major unit to load on a given ship.

f. If embarkation is accomplished at ports of embarkation, normally transportation corps units will establish embarkation areas, schedule arrival of units, and coordinate loading of ships.

142. TYPES OF LOADING

The manner in which cargo is loaded aboard a vessel is determined by the order in which equipment and supplies will be needed when unloaded. Task forces are seldom alike; equipment and supplies differ; and the priority in which matériel is required on the beach or pier will vary with the assigned mission. These factors require special study in determining the type of loading to be used.

a. *Combat loading* is the loading of an assault troop unit, together with its essential combat equipment and initial combat supplies, in a single ship in such a manner as to permit rapid debarkation in a desired priority for landing attack. This type of loading is used for any operation when opposition from the enemy is anticipated. Vessels must be loaded to provide maximum flexibility to meet possible changes in the tactical plan. Combat loading differs from other methods in



— COMMAND CHANNEL FOR EMBARKATION

- - - EMBARKATION OFFICER CHANNEL FOR PLANNING, SUPERVISING, AND ACCOMPLISHING EMBARKATION

Figure 11. Organization for embarkation. (Diagram shows embarkation group loaded on 4 APA's and 2 AKA's.)

that only a portion of the total shipping space allotted can be utilized. This is due to the necessity of loading cargo so as to meet emergency calls for equipment and supplies and to facilitate rapid discharge of cargo. It must be borne in mind at all times that combat loading is designed to insure maximum unloading efficiency of the individual landing teams and of the group as a whole. All other considerations, such as economy of space, must be subordinated to this. For this reason, combat loading is one of the best examples of the complete interdependence of tactics and logistics. The objectives of combat loading are to—

- (1) Stow supplies and equipment aboard a vessel so that they will be available for unloading and delivery to the beach at the time and in the order required to support the tactical situation ashore.
- (2) Disperse troops and vital equipment and supplies throughout the ships of the convoy so that the loss of a ship will not materially affect the tactical integrity of the units in the remaining ships.

b. Unit loading (organizational loading—Navy) is the loading of a troop unit, together with its equipment and supplies, on the same ship but without consideration of priority of debarkation for landing attack. It permits debarkation of complete, equipped units. This method uses ship space more efficiently than combat loading. Unit loading is used to best advantage when the troop units within the convoy may be debarked at separate ports. This type of loading also may be used for transporting units arriving some time after D-day and when the destination is subject to change.

c. Convoy loading is the loading of troop units with their equipment and supplies in ships of the same convoy, but not necessarily in the same ship. Units so loaded are available for employment when landed at established beachheads or ports and after the lapse of time necessary to assemble them on land with their equipment and supplies. Vessels are loaded without consideration for tactical debarkation. This type of loading is used to best advantage for the movement of occupational or replacement troops to the objective area, or for the movement of units in the rear areas. Convoy loading is efficient from the standpoint of ship's space, but it is used only to transport troops who will debark at a common destination.

d. Commercial loading is of two types:

- (1) *Bulk and general cargo loading* is the stowage of supplies to utilize the entire carrying capacity of a ship, disregarding segregation of cargoes by class, technical service, or commodity. It permits the maximum economy of shipping space but requires additional labor and facilities at the destination to segregate and assemble the supplies for use.

- (2) *Multiple port discharge* utilizes bulk stowage of supplies for more than one destination. Supplies are loaded so as to maintain availability for discharge of proper items in the order of arrival at the ship's scheduled destinations.
- e. *Special military loading* is done in three ways:
 - (1) *Commodity loading* is the loading of a ship with one class of supplies or with supplies of a single service. This method makes less efficient use of shipping space but permits discharge and clearance of supplies from a port area without delay for segregation.
 - (2) *Balanced loading* is utilized in loading a vessel in quantities proportional to estimated rates of consumption or needs for a specific number of personnel.
 - (3) *Selective discharge* is a method of loading a ship with supplies to permit the immediate or ready discharge of any item.

143. ORGANIZATION OF THE RCT FOR EMBARKATION

a. The RCT organization for embarkation is flexible. The exact organization depends on the number and type of vessels allocated for a particular operation. The RCT commander is responsible for the embarkation of the embarkation group. He directs embarkation through his commanders. Embarkation is decentralized. A Team Embarkation Officer, responsible to the commanding officer of troops, is assigned to each vessel.

b. The RCT embarkation staff consists of the regimental embarkation officer, the battalion embarkation officers, team embarkation officers, and enlisted assistants as required. See FM 60-5 for embarkation of the BLT.

144. THE REGIMENTAL (OR GROUP) EMBARKATION OFFICER

The Group Embarkation Officer (formerly the embarkation group transport quartermaster, TQM) is a special staff officer on the RCT commander's staff. He is an assistant to the RCT S4. He advises the RCT commander on all matters pertaining to embarkation planning, loading, and embarkation of the embarkation group. His duties are to—

- a. Recommend the allocation of assigned shipping within the embarkation group.
- b. Coordinate the reception and disposition of troops, equipment, and supplies in the embarkation area.
- c. Coordinate the loading activities of the embarkation group.
- d. Assist in preparing loading plans for all vessels assigned to the embarkation group.

145. LIAISON AND ADVANCE DETAILS

a. Liaison between the embarkation group commander, the transport division commander, and the division embarkation officer is established at the earliest possible time and is maintained throughout the embarkation phase. Through this early liaison, major embarkation problems are resolved and continuous liaison provides a continuity and smoothness in embarkation. The group embarkation officer maintains liaison with the transport division's executive officer and with the division embarkation officer.

b. On levels lower than the RCT, further liaison is established and maintained. On each vessel, the commanding officer of troops establishes liaison with the vessel's commanding officer and the team embarkation officer with the ship's combat cargo officer (formerly Ship's TQM). These officers also establish contact with all units and detachments that are to embark on the ship as part of the embarkation team.

c. Advance details, or parties, precede the main body to the embarkation area to start embarkation planning, to assist in the loading of equipment, supplies, and personnel, and to provide for the administrative activities aboard ship. Advance details report to the embarkation area or to their vessel according to a time schedule.

Section IV. CONCENTRATION FOR EMBARKATION

146. GENERAL CONSIDERATIONS

a. The concentration for embarkation comprises the gathering of troops, equipment, supplies, and vessels in an embarkation area or areas. Concentration of the landing force elements for embarkation is divided into two phases. In the first, troops and equipment prepare for the concentration at their home stations and then moved to the embarkation area. In the second, they are received and placed in the embarkation area to facilitate loading them aboard ship.

b. The concentration of the reinforced infantry division for an amphibious operation, the embarkation area or areas in which it assembles, and the time schedule it follows are included in orders from higher commanders. The establishment of the embarkation areas and their facilities is the responsibility of the commanders of the designated ports of embarkation.

c. At the time of its concentration for embarkation, the reinforced division should be in the highest possible state of readiness. This means that the division arrives in the embarkation areas with its full complement of personnel and equipment, with troops and special details trained in embarkation procedures, and with all equipment ready for embarkation.

d. The RCT and the units included in its embarkation group are

concentrated by the division commander's orders, which normally include the—

- (1) Designation of units to be concentrated.
- (2) Types and number (or amount) of nonorganizational supplies and equipment.
- (3) Specific embarkation areas.
- (4) Method of movement and routes.
- (5) Time schedule.
- (6) Details concerning the preparation of personnel, supplies, and equipment.
- (7) Type and number of advance details.
- (8) Security and counterintelligence measures.

147. CONTROL ORGANIZATION FOR EMBARKATION

The control organization for planning and executing the concentration is the same as for any operation. In the RCT embarkation group, the RCT S1 is responsible for the reception and disposition of troops in the troop marshalling area. The regimental embarkation officer, assisted by the battalion and division embarkation officers and their details, is responsible for the reception and disposition of cargo, vehicles, and towed weapons.

148. MARSHALLING OF TROOPS

a. For embarkation, troops of the division are concentrated in a troop marshalling area under the control of the port commander. The port commander designates the division marshalling area. In the marshalling area the division is quartered by embarkation groups that are further subdivided into embarkation teams. A quartering party, headed by the division quartering officer (division G1 or designated assistant) and including quartering parties for each embarkation group and team, is dispatched to the marshalling area to arrive at least 24 hours before the division. The duties of the division quartering party are the same as those of any quartering party.

b. The purpose of the marshalling area is to provide facilities for the care of the troops pending their embarkation. Preembarkation activities in the marshalling area include—

- (1) Physical inspections of all personnel.
- (2) Inoculations and immunization.
- (3) Indoctrination lectures to troops concerning life aboard ship, including naval terms, shipboard drills, the arrangement of individual equipment in compartments, mess routine, and recreational facilities.
- (4) Reading of ship's regulations.

- (5) Physical training and athletics to retain a high state of physical conditioning.
- (6) Inspection for shortages or overages in clothing or equipment.
- (7) Distribution of required items of clothing or equipment, regular or special, as determined by the show-down inspections.
- (8) Turn in of all excess or unauthorized items of clothing or equipment.
- (9) Preparation of troop space cargo for embarkation.
- (10) Other activities to insure readiness for embarkation.

149. PREPARATION FOR LOADING

a. When practicable, the landing force embarks in echelons of embarkation groups. Simultaneous movement of troops, supplies, and equipment of larger forces creates confusion and results in tasks that may be beyond the capabilities of supply agencies and supporting service troops.

b. As early as practicable before embarkation, the division embarkation officer (or senior embarkation officer) establishes a control center in the embarkation area. He supervises the movement of supplies and equipment, maintains liaison with port authorities, and surveys cargo assembly areas and their assignment to embarkation groups or teams. He supervises and coordinates all embarkation tasks.

c. Embarkation groups establish a control office within their embarkation area before their supplies and equipment arrive. It functions under the group embarkation officer, who coordinates and supervises the activities of the embarkation group in the embarkation area. This office is easily accessible and prominently marked.

d. Embarkation teams dispatch advance parties to the embarkation area before the loading of supplies and equipment begins. They consist of the team embarkation officer and his assistants, the billeting detail, mess detail, guard detail, and ship's platoon.

e. The movement of supplies and equipment to cargo assembly areas is completed in time to permit a detailed inventory of material assembled for loading on each vessel.

f. Communication is maintained in the embarkation area between naval forces, landing forces, supply facilities, and embarkation points during the entire period. See paragraphs 300-304 for details on communication in the embarkation area.

150. ASSEMBLY OF CARGO

a. The organizational equipment, supplies, vehicles, trailers, and towed weapons of the RCT embarkation group are placed in a cargo

assembly area under the supervision of the group embarkation officer. In the cargo assembly area, the organizational equipment and supplies (cargo) of each embarkation team are assembled in a specific ship assembly area. The assembly of cargo for each vessel is the direct responsibility of the commander concerned through his embarkation officer and through the team embarkation officer concerned. In the ship assembly area, cargo is arranged by hold section and hatch level in the sequence it will be loaded. For operation of the ship assembly area, see FM 60-5.

b. Vehicles, trailers, and towed weapons of each embarkation team are placed in a separate vehicle assembly area, which is a part of or adjacent to the vehicle waterproofing area. They are arranged by hold section and hatch level in the sequence for loading.

c. During the loading of a vessel, while it is preferable to assemble all cargo in a ship assembly area, cargo may be received by truck directly from depots or dumps. All cargo on each truck is consigned to the same ship, hold section, and hatch level. Cargo so received is accompanied by a pile tag, which is the shipping ticket for the cargo. For the description and use of the pile tag, see FM 60-5.

151. PREPARATION OF EQUIPMENT, SUPPLIES, AND VEHICLES (TM 38-414 and FM 60-5)

a. The landing force commander prescribes a standard method for preparing, packing, crating, palletizing, and marking equipment, supplies, vehicles, trailers, and towed or self-propelled weapons. To speed embarkation, the maximum amount of cargo is prepared for loading before its arrival in the embarkation area.

b. Boxing and crating prevents cargo loss or damage. It is standardized to aid in handling and stowage. Marking consists of a set of symbols, letters, numbers, or colors. The marking of cargo other than vehicles includes the identification of—

- (1) Number of crate or box.
- (2) Organization and unit to which it belongs.
- (3) Contents of box or crate.
- (4) Type of supply.
- (5) Transport division and specific ship on which it will be loaded.

c. Palletization is the technique of combining cargo on sled-type pallets for ease in loading, unloading, and handling. Items of supply favorable for palletization are ammunition, rations, medical supplies, water and gasoline cans, barbed wire, and sandbags. Palletization is wasteful of cargo space and requires special equipment. The extent of palletization for any operation is indicated by the type of beaches to be encountered, the types and amounts of shipping, the time al-

lowed for unloading, and the availability of special equipment for handling the pallets. Normally the division commander specifies the extent of palletization.

d. In preparing vehicles, trailers, and towed or self-propelled weapons for loading—

- (1) All fuel tanks are filled to 75 percent capacity, and a reserve supply of fuel and lubricants in cans are secured with the vehicle.
- (2) Fuel, lubrication, circulation, and ignition systems are checked, and tires are inflated to the specified embarkation pressure.
- (3) Vehicles to be landed during the assault are waterproofed according to existing instructions.
- (4) Bows are removed, secured together, and attached to the body of the vehicle. Canvas tops are taken with the vehicle. Windshields are lowered and secured to prevent breakage.
- (5) The height of combat loads do not exceed the highest point on the vehicle. The loads are securely cross-lashed.
- (6) Vehicles are marked on each side and on the top with the vessel number and debarkation priority number. These markings are made with chalk or other easily removable substance. Vehicles are aligned in the ship assembly area in inverse order of priority number, dispatched to the ship in that order, and stowed by the team embarkation officer according to prepared stowage plans.

152. MOVEMENT OF MATERIAL TO THE PIER

a. Cargo is transported to the embarkation point by motor vehicle or rail from ship assembly areas, from supply installations, or from the home station of the embarking unit. The cargo is dispatched to the embarkation point according to the loading schedule. This schedule is prepared by the team embarkation officer for his vessel, and is based on the number of hatches that can be worked and on the loading priority established by the stowage diagram. The dispatch of cargo to the embarkation point is timed to insure continuous loading. The movement of cargo in excess of that required for continuous loading creates confusion, interferes with the loading of other vessels, and reduces the flexibility of loading.

b. The flow of cargo to the embarkation point is regulated by continuous liaison between the team embarkation officer or his representatives at the embarkation point in the cargo assembly areas and between the team and group embarkation officers. The group embarkation officer exercises over-all supervision of the movement of cargo to the

embarkation point from the ship assembly areas in his cargo assembly area and from outside supply installations.

c. To prevent double handling, cargo moved to the embarkation point by motor vehicle is loaded into cargo nets placed in the bed of the vehicle.

153. MOVEMENT OF VEHICLES TO THE PIER

Vehicles in complete readiness for loading are moved from the vehicle assembly area to the embarkation point according to the loading schedule.

Section V. LOADING

154. DECENTRALIZATION OF CONTROL DURING LOADING

The commanding officer of troops is responsible for the loading of his vessel, which takes place under the direct control and supervision of the team embarkation officer. See FM 60-5 for loading the BLT.

155. LOADING OF TRANSPORTS

a. Loading of the transport starts when the commanding officer of the vessel announces that the transport is ready to receive cargo. Once loading begins it is continuous (fig. 12). At embarkation points where pier facilities are available, combat loading of APA's can be completed within 24 hours and of AKA's within 72 hours after loading begins.

b. At ports of embarkation, transportation corps personnel supervise and coordinate the loading and provide stevedores either from port companies or civilian labor, to load the ship. Members of the ship's platoon observe the loading to familiarize themselves with cargo stowage, since they normally unload the ship during debarkation. Details from transportation port companies may accompany troop ships (becoming the ship's platoon) or they may board the ships in the rendezvous area to discharge the combat loads.

c. When loading at points other than ports of embarkation, the ship's platoon loads the cargo. The ship's platoon is that part of the embarkation team employed on the vessel for loading and unloading. The team embarkation officer controls the loading through the ship's platoon leader. The ship's platoon leader controls the loading of each hatch through a noncommissioned officer who is provided with a copy of the stowage diagram and a cargo manifest for that hold section. Cargo is placed in cargo compartments as specified by the stowage diagram (fig. 13), and the completeness of the cargo is determined by checking all loaded items against the cargo manifest.

d. Ship's platoons vary in size with the type of ship to be loaded.



Figure 12. Loading vehicles.

For handling ammunition the estimated maximum is ten men per hatch per shift. Additional personnel, other than the ship's platoon, are required on the beach or dock during loading. Such personnel may be stevedores used by the port authorities, shore party personnel, or troops of the embarkation team trained to assist in loading.

e. Labor-saving devices and loading aids are used for the handling of cargo. The port authority provides fingerlift trucks. A minimum of three should be assigned to the dockside of each transport. Because of limited overhead clearance, fingerlift trucks are of small value within the cargo compartment of the ship; however, hydraulic jacks are provided, and snatch blocks are rigged by ship's personnel, when necessary for handling vehicles and heavy lifts.

f. Bulk cargo is stowed by type in vertical sections radiating from the center of the hatch. Critical items like ammunition, water, and medical supplies are distributed among several holds to permit rapid discharge. To be immediately available, initial combat supplies and equipment are stowed horizontally at the highest practical level. When cargo space is critical, low priority supplies and equipment may be stowed under vehicles in the holds of vessels.

g. Safety precautions are observed during loading to make sure that—

- (1) Loads do not exceed in weight the rated capacity of the boom to be used in unloading.
- (2) Vehicles are slung at points that best support the vehicle without placing undue strain on the frame.
- (3) High-explosive ammunition and inflammables like gasoline and pyrotechnics are handled with extreme care both on the dock and aboard ship. Leaking cans or drums of gasoline are immediately removed from the ship and the dock area. Smoking is prohibited during the loading or movement of petroleum products or explosives.

h. Loading a transport in the stream takes more time than dockside loading. Cargo is brought to the ship in lighters supplied by the Navy or the amphibious support brigade. With good weather and sea conditions an APA can be combat loaded in the stream in 36 hours and an AKA in 96 hours.

i. Landing craft used for loading are provided with cargo nets. These nets are spread within the landing craft and the supplies and equipment are loaded directly into them. If enough cargo nets are available, they may be preloaded and lifted into the landing craft by

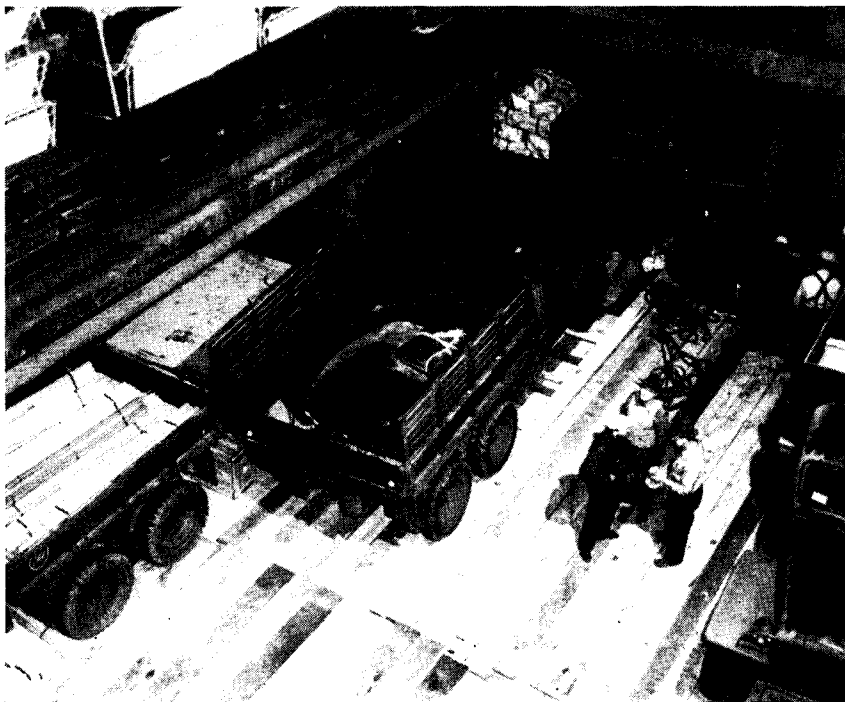


Figure 13. Vehicles are loaded aboard ship according to the stowage diagram.

cranes. Sections of roller-conveyer may also be used in moving supplies from beach dumps to the water's edge. Palletized supplies are handled by crane or by fingerlift tractors. Organization of the ship's platoon for beach loading is similar to that for loading at a dock; however, because of the increased difficulty of loading supplies and equipment from lighters, the ship's platoon may be supplemented by shore party personnel.

156. LOADING OF LANDING SHIPS AND CRAFT

The loading of the landing ship tank (LST), landing ship medium (LSM), landing ship dock (LSD), landing craft mechanized (LCM), and landing ship utility (LSU) is not as complicated as that of the transport-type ship. The LCM, the landing craft, vehicle, personnel (LCVP), the landing vehicle tracked (LVT), and the DUKW (an amphibious truck) are normally transported aboard landing ships or transports. Nevertheless detailed loading plans are necessary. See FM 60-5 and FM 101-10 for detailed characteristics of landing ships and craft.

a. Landing Ships.

(1) *LST's* are used to transport troops or matériel, but troop facilities for long voyages are limited. A typical LST has troop accommodations for 14 officers and 131 enlisted men. The pay load is between 1600 and 1900 tons. The LST is normally loaded directly from the shore or a suitable pier by a ramp in the bow (fig. 14). The ramp leads onto the tank deck.

(a) A shore loading point needs proper hydrographic features, suitable bearing surface for vehicles and material, and access routes. At sea the LST can be loaded from LSU over the ramp or over the upper deck from a transport or cargo ship, but because it has only one cargo hatch between the upper and tank decks, the process is extremely slow. Interior ramps installed on some of the later LST models speed up this operation.

(b) The tank deck offers a wide range of loading arrangements. The upper deck can carry vehicles or equipment that may be moved to or from the tank deck either by an elevator in the forward part of the ship or by a deck ramp connecting the two decks, depending on the model of ship. Cargo such as rations, ammunition, and palletized supplies may be understowed on the tank deck of the LST, except when tanks are to be loaded. When LVT's are to be loaded, supplies are understowed only if other cargo space is not available. Three layers of dunnage are placed between



Figure 14. Loading artillery aboard an LST.

the vehicles and the understowed supplies. When the vessel is likely to be beached at the objective, loads for the LST do not normally exceed 500 long tons.

- (c) Loading plans are relatively simple, consisting of deck plans showing the location of equipment or cargo. Each team embarkation officer, using scale drawings of decks and scaled templates of vehicles and material to be loaded, prepares loading plans for his ship. Personnel lists are required for all vessels.
- (2) The *LSD* is an adaptation of a floating dry dock and normally carries up to 18 *LCM*'s. The *LSD* carries 22 troop officers and 310 enlisted men. *LCM*'s are loaded via a stern gate after ballasting down the vessel until the well deck is below the water line. Each *LCM* carries one medium tank. There is no cargo space on the *LSD* other than in the well deck; therefore all supplies and equipment are loaded within the *LCM*'s. If desirable, *LVT*'s are loaded in place of *LCM*'s. Other vehicles, including tanks, may be loaded into the well deck from *LSU*'s or *LCM*'s by ballasting the *LSD* until the well deck is at the water line. *LSU*'s or *LCM*'s are required to discharge the vehicles loaded by this method. Two 35-ton cranes are available on the *LSD*. The *LSD* can carry three *LSU*'s (each loaded with three M26 tanks) or 41 *LVT*'s. Temporary decks can be constructed which enable the *LSD* to carry 94 *LVT*'s or 108 *DUKW*'s.

- (3) The *LSM* has a capacity of either five M26 tanks, six LVT's, ten trucks, or nine DUKW's. It has accommodations for 48 troops. The *LSM* is loaded from beaches or suitable piers by a bow ramp. The tank deck is the only space available for cargo. The ramp leads directly to the tank deck. Loading instructions for the *LST* apply also to this ship.
 - (4) The *LSU* can carry either three M26 tanks, five M24 tanks, four medium tanks, nine trucks, or 150 tons of cargo. It has no troop accommodations. It is loaded similarly to the *LSM*. The *LSU* is smaller and less seaworthy than the *LSM*.
- b. Landing Craft.*
- (1) The *LCM* can carry either one M4 medium tank, 120 troops, or 34 tons of cargo.
 - (2) The *LCVP* can carry either 36 fully equipped troops, three tons of vehicles (not wider than the 1/4-ton truck), or four tons of cargo.
- c. Landing Vehicles.*
- (1) The *DUKW*, a 2½-ton amphibious truck, provides an effective means of moving personnel and supplies from ship to shore and across undeveloped beaches. The vehicle is also effective for landing 105-mm Howitzers and 1/4-ton vehicles.
 - (2) The *LVT*, an amphibious tracked vehicle of 4-ton capacity, is used where landing is made across a fringing reef or where barbed wire and other obstacles are erected on or near the beach. The *LVT* can carry 24 troops in addition to the crew and affords protection against small arms fire and fragments during the landing. The *LVT (A)*, an armored *LVT*, provides mobile artillery support immediately upon landing.

Section VI. EMBARKATION OF TROOPS

157. CONTROL BY EMBARKATION TEAM

As in the loading of material and supplies, the embarkation of troops is decentralized. Troops are loaded by embarkation teams according to the embarkation schedule. Troop loading is the responsibility of the commanding officer of troops for each vessel. Embarkation is controlled by an advance detail that boards the vessel 24 hours before the arrival of the troops.

158. ADVANCE DETAILS

a. The advance detail for the embarkation of troops consists of the necessary officer and enlisted personnel to accomplish embarkation. The number of persons and types of details depend on the type of vessel the embarkation team is boarding. The commanding officer of each vessel specifies the number and type of details needed on his

vessel. The commanding officer of troops supplements these requests to meet the additional requirements of control and administration of the embarkation team (FM 60-5).

b. The advance detail for APA's and AKA's consists of the troop executive officer, troop communication officer, billeting officer, mess officer and mess personnel, ship guard, guides, an administrative non-commissioned officer, and other persons needed for control and administration.

159. EMBARKATION ON TRANSPORTS

a. The embarkation of troops, except for the advance detail, is scheduled to begin after the cargo is loaded or at a time that will not interfere with the loading of cargo. All troops are checked aboard from a passenger list. The preparation and accuracy of the passenger list is the responsibility of the commanding officer of troops for each vessel. He is aided by the billeting officer who provides liaison with the ship's combat cargo officer.

b. Boat teams are quartered aboard ship according to a billeting plan prepared by the billeting officer. The billeting plan is prepared to support the order in which teams or units debark in the objective area. The last teams to debark are billeted first in the lowest priority troop compartments. The compartments are further selected so that the boat teams are billeted adjacent to their debarkation stations or near passageways to their debarkation stations. Embarkation of troops may be accomplished dockside or in the stream. See FM 60-5 for details concerning the embarkation of troops on transports.

160. EMBARKATION ON LANDING SHIPS

Embarkation on landing ships differs from embarkation on transports only in the number of troops or units involved and the method by which the troops arrive on the vessel. The LSD and LST are the principal troop-carrying landing ships or craft. The principles and methods for quartering are the same as for the transport.

Section VII. VOYAGE

161. RESPONSIBILITIES OF THE RCT DURING THE VOYAGE

During the voyage en route to the objective, the RCT commander can do little to influence the operation. The successful and safe delivery of the RCT to the landing beaches is the Navy's responsibility. The administrative and tactical control of the embarkation teams within the RCT embarkation group is the responsibility of each commanding officer of troops. The RCT commander disseminates changes

in plans, the exact time and date of H-hour and D-day, and intelligence and other information received from the landing force commander. Communication between members of the RCT during the voyage is normally through Navy communication channels.

162. ADMINISTRATION AND TACTICAL CONTROL

Administration and tactical control during the voyage are the responsibility of the commanding officer of troops for each vessel. Administration aboard ship conforms with the ship regulations and the administrative order (FM 60-5). Tactical control is prescribed in the operation order.

163. ORIENTATION AND TRAINING

a. At the time of embarkation, only the RCT commander and other designated commanders and RCT staff members have detailed knowledge of the impending operation. Once the embarkation is completed and the RCT is at sea, all troops are oriented as to their destination and the detailed part they play in the assault landing. The commanding officer of troops for each vessel orients each embarkation team. See FM 60-5 for details of this orientation.

b. All training aboard ship is conducted according to a training program published by the RCT commander. The training program includes—

- (1) Care and cleaning of weapons.
- (2) Aircraft recognition—stressing identification of friendly and enemy aircraft that may be encountered in the objective area.
- (3) Map reading and combat orientation—stressing familiarization with the maps and aerial photographs to be used at the objective.
- (4) Intelligence instruction—stressing indoctrination in characteristics, customs, and language of the enemy and civilian inhabitants of the objective area.
- (5) Briefing of all personnel on the mission and detailed employment of all units.
- (6) Physical training.

c. To aid in the orientation and training during the voyage, the maximum use is made of training aids. Because of the highly classified nature of these training aids, they are secured and assembled under the close supervision of higher commanders. They are delivered to embarkation teams at the latest possible time before sailing.

164. DEBARKATION DRILLS

To insure a rapid and efficient debarkation at the objective area, each vessel conducts debarkation drills. The first several drills are

walk-throughs to familiarize each boat team with its assembly area and the route to its debarkation station. After the indoctrination phase is completed, day and night drills are held with boat teams going to their debarkation stations. Drivers go to the hold, or hatch, where their vehicles are located. The ship's platoon reports to its unloading station. See FM 60-5 for debarkation procedure.

165. PREPARATION FOR DEBARKATION

Twenty-four hours before the transports arrive in the objective area, final preparation for debarkation is begun on each vessel. This preparation is divided into four phases:

a. Issuing and Inspecting Combat Supplies.

- (1) Ammunition, pyrotechnics, water, rations, and special equipment are issued to the embarkation team.
- (2) Flame throwers are fueled.
- (3) Communication equipment is inspected for serviceability and waterproofing.
- (4) Vehicles and heavy equipment are inspected for serviceability, waterproofing, and readiness for debarkation.
- (5) Each individual is inspected to insure completeness of his clothing, combat equipment, and supplies.

b. Preloading and Spotting of Equipment. All equipment and supplies that can be preloaded are placed in their respective landing craft. Other heavy equipment is placed at the correct loading station. All equipment is secured to prevent damage or loss.

c. Welfare and Morale Activities. Religious services are held during this period for those who desire them. If possible, a special meal is fed before debarkation. Preparations are completed in time to enable all personnel to get the maximum amount of rest before the actual hour of debarkation.

d. Final Conferences. Conferences are held between the BLT commander, his staff, and the unit commanders. At this time any last-minute changes in the situation or operation order are published. Unit commanders disseminate any changes to their boat team commanders and in turn the boat team commanders pass this information to the members of their boat team.

CHAPTER 6

SHIP-TO-SHORE MOVEMENT

Section I. ORGANIZATION

166. GENERAL

The ship-to-shore movement is carried out by three basic organizations: the landing force, the landing craft and amphibious vehicle organization, and the control organization (table I). This section covers the tactical organization of the landing craft and the control organization. For the organization of the RCT and its elements, see paragraphs 28-30.

167. TRANSPORT DIVISION

a. The transport division is a naval task organization having enough ships and craft to embark, transport, and land the RCT. The TRANSDIV commander is responsible for the ship-to-shore movement of the landing force elements embarked on the ships under his command. Also, he is responsible for the organization, training, and functioning of the landing craft assigned to the division.

b. The transport division commander controls the operation of the landing craft from the time they are launched until they leave the rendezvous area. The RCT commander and his staff are normally aboard the transport division flagship. When the ship-to-shore movement begins, the RCT commander leaves a representative aboard to maintain liaison throughout the landing phase. The closest coordination and cooperation is needed to supervise the execution of the landing plan and the plan for using the landing craft. The transport division commander may delegate some of the planning to the transport division control office.

168. BOAT FLOTILLA

The boat flotilla is a naval task organization having two or more boat groups. The transport division commander organizes it when he deems it necessary to control and coordinate the operations of two or more boat groups through a common commander. The flotilla commander is responsible to the transport division commander for the operation of landing craft during the ship-to-shore movement. He

TABLE I. *Organization for Ship-to-Shore Movement*

LANDING FORCE	NAVAL ELEMENTS		CONTROL
Troops-----	Task Organization-----	Landing Craft Organization.	Control Vessel-----
Landing Force-----	Attack Force-----	-----	Central Control-----
Infantry Division-----	Transport Squadron-----	-----	Transport Squadron Control.
RCT-----	Transport Division-----	Boat Flotilla-----	Transport Division Control.
BLT-----	Transport-----	Boat Group-----	Boat Group Commander.
Troops which are to land simultaneously.	-----	Boat Wave-----	Wave Commander's-----

is assisted by a staff and is provided the necessary craft and signal equipment to control the boat groups and to maintain communication with the control group and the transport division commander. The transport division control officer works out the details of the landing plan with the RCT commander and his staff. These plans include the assignment of landing craft and the coordination between the boat groups that land the BLT's and the other RCT elements.

169. BOAT GROUP

The boat group is the basic naval task organization of landing craft for the execution of the ship-to-shore movement. It contains the landing craft needed to land a BLT. The boat group is commanded by a naval officer. He is assisted by an assistant boat group commander and a wave commander for each wave of boats within the boat group. As there are seldom enough landing craft carried by the APA's on which the BLT is embarked to boat the BLT assault elements at one time, additional craft are needed. For example, additional craft from ships carrying the RCT reserves, or from the transport divisions carrying the reserve RCT, may be assigned to the boat groups landing the assault BLT's. Also, craft from boat groups that have already landed assault BLT's may be assigned to another boat group to assist in landing reserves or supporting elements. See FM 60-5 for details on boat waves.

170. CONTROL GROUP

a. The control group is the naval unit organized to supervise, direct, and control the ship-to-shore movement from the rendezvous area to the beach. This group is responsible to and functions directly under the attack force commander. Troop commanders designate representatives who are stationed on each vessel of the control group to assist and advise the control group and to maintain liaison during the ship-to-shore movement.

b. The control group is responsible for—

- (1) Controlling the movement of all landing craft between the rendezvous area and the beach.
- (2) Controlling all waterborne amphibious vehicles.
- (3) Marking all control points needed to regulate the ship-to-shore movement.
- (4) Keeping the attack force and other designated commanders informed of the progress of the landing and of the operations ashore.
- (5) Relaying all messages to and from the landing beaches.

c. The control group is organized to parallel the transport organization and to fit the tactical plan of landing. It has a *central control*

officer for over-all control who is directly under the attack force commander. This central control officer is assisted by a *transport squadron control officer* for each division landing in the assault. Under each transport squadron control officer are *transport division control officers* for each transport division in the assault. There is a *transport control officer* for each transport carrying an assault BLT. *Wave commanders* are responsible for the control of their wave of boats in the assigned boat lane, which includes the sea area between the line of departure and the BLT beach.

171. SEA AREAS

To aid in controlling and coordinating the ship-to-shore movement certain sea areas are established (fig. 15).

a. The *transport area* is an area where transports and cargo ships take station to debark troops and cargo. The area is designated by the attack force commander. Initially located out of range of shore batteries, it may be moved closer to the beach for subsequent unloading of cargo and troops after the initial landing is made.

b. The *landing ship area* is the designated area where landing ships and large landing craft take station on arrival in the landing area to discharge amphibious vehicles or to await call to land. The landing ship area is usually located closer to the beach than the transport area, because amphibious vehicles are much slower, when waterborne, than conventional landing craft.

c. The *rendezvous area* is the area where waves of landing craft are formed after being loaded and before movement to the line of departure. It is located between the transport area and the line of departure. After loading in the transport area, all landing craft go to the rendezvous area and remain there until called for or until scheduled to move to the line of departure.

Section II. PLANS FOR SHIP-TO-SHORE MOVEMENT

172. GENERAL

Successful execution of the ship-to-shore movement depends on thorough planning, coordination, and control. Plans are prepared in minute detail to insure rapid debarkation and the landing of personnel, equipment, and supplies on schedule and in the proper sequence. Plans for debarkation and movement to the shore of BLT's and all other RCT units are prepared and completed before embarkation to make sure that the loading and billeting aboard ship support the debarkation and assault requirements. RCT debarkation plans, based on information supplied by higher commanders, show the scheme of maneuver ashore, the availability of landing craft within the trans-

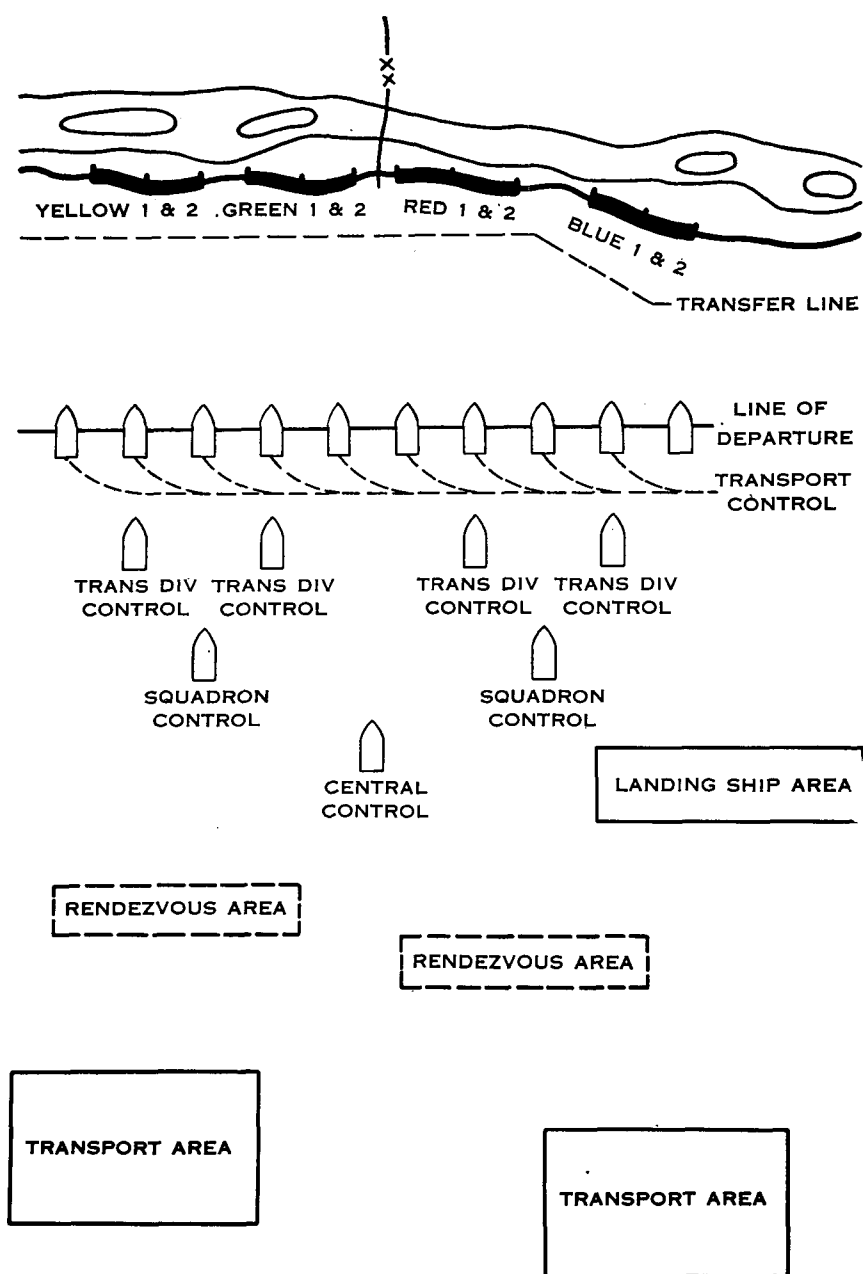


Figure 15. Sea areas and control points (schematic).

port division, the landing craft employment plan, the landing plan, the composition of the RCT, and the landing capabilities of assigned craft. To provide for the proper coordination of all RCT units during the ship-to-shore movement, the RCT commander and the transport division commander prepare planning forms and tables.

173. SHIP-TO-SHORE PLANS

a. Based on the division tactical scheme of maneuver ashore, the division assigns the RCT to a transport division for the movement to the objective area and the execution of the ship-to-shore movement. For his preliminary planning, the RCT commander establishes early liaison with the Navy to determine the exact number and types of landing craft that are available within the transport division. Having decided on a tentative scheme of maneuver ashore, the RCT commander requests from his division commander any additional craft needed to supplement the normal complement within the transport division to carry out his tactical plan. Ships and landing craft that are made available to the RCT commander are allocated by him to BLT's and lower units according to the RCT tentative scheme of maneuver ashore.

b. Based on his allocation of landing craft to the BLT's and lower units, the RCT commander informs the transport division commander of the number of landing craft required for the RCT. Knowing the RCT requirements, the transport division commander, in conference with the RCT commander, prepares the landing craft employment plan. Additional craft needed to land the assault BLT's are usually obtained from other transports within the transport division.

c. Next, based on the division operation order, the RCT scheme of maneuver, and the BLT commanders' recommendations, the RCT commander prepares his over-all landing plan. This plan includes the information necessary for landing all RCT elements to accomplish the assigned mission. Landing diagrams and boat assignment tables are then prepared by the BLT commander. Upon completion of the BLT landing diagrams, the RCT commander coordinates the entire landing plan with the transport division commander. After adjustments are made, and the necessary control and support craft are included, the detailed plans are adopted jointly and are published as an annex to the RCT operation order in the form of a consolidated landing diagram.

d. The RCT units are landed on schedule or on call. Based on the division landing schedule, the RCT commander prepares the RCT landing schedule. He also establishes priorities from which each RCT unit bases its priorities for the second and succeeding trips of

landing craft. Priorities for landing units in the second trip of landing craft are issued in an appendix to the RCT landing schedule.

e. When amphibious vehicles are used, the RCT commander prepares the amphibious vehicle availability table and employment plan. This plan is based on the division plan and the recommendations of the commanders of the assault BLT's.

174. LANDING CRAFT AND SHIP REQUIREMENTS

a. Assault landing operations require landing craft, vehicles, and ships in adequate numbers to land the personnel and matériel of the embarked RCT according to the tactical and administrative plans. The Navy is charged with providing and operating all of these craft except the army amphibious vehicles and the landing craft of the amphibious support brigade.

b. Each transport group should have enough landing craft to simultaneously boat the assault elements of the embarked RCT's. There should be adequate numbers and types of landing craft, vehicles, or ships to land the tanks, artillery, and reserves required to maintain the momentum of the attack, to perform service, control, and salvage, and to be used for other naval purposes.

c. The RCT commander provides the detailed information needed by the Navy to determine landing craft requirements and the manner of their employment. The minimum number of craft provided should carry enough of the assault BLT's and their reserves in one trip to gain and hold the BLT's initial objectives.

d. After being transferred from transports to landing craft, troops and equipment are carried directly to the beaches if the boat lanes are unobstructed. This is the simplest type of landing because it involves a minimum of landing craft types, and it does not involve transfer operations. The landing craft are carried aboard the ships transporting the troops. Such a landing requires sea approaches and boat lanes free of obstacles.

e. Amphibious vehicles are needed if the landing is made on beaches whose approaches are protected by obstacles or reefs that prevent landing craft from beaching. Even when boat lanes are free of obstructions, tracked amphibious vehicles can be used to land troops in areas that are nontrafficable to wheeled vehicles. Normally, these amphibious vehicles, with troops and equipment, are transported in and debarked from landing ships. Usually, the number of amphibious vehicles used in a landing operation is limited to the requirements for boating the assault elements. Units not being embarked in the first trip of amphibious vehicles may be boated in landing craft and transferred to the amphibious vehicles while waterborne.

f. Amphibious vehicles, such as the DUKW, are suitable for land-

ing troops and equipment, particularly light artillery, in later waves. DUKW's are most useful prime movers and cargo trucks until normal transportation is established ashore. As the DUKW is not full-tracked, it is not used to traverse obstacles like large rocks, wreckage, stumps, soft mud, swamps, marshes, and quicksand. Its relatively light hull provides no protection from enemy fire.

g. Armored amphibious vehicles will normally constitute the leading wave of, or furnish flank protection for, the assault landing force. When the assault waves are boated in landing craft, armored amphibious vehicles are dispatched early because of their slower speed.

h. Lighters, landing ships, and barges are needed to land the RCT equipment and supplies. Large landing ships, such as the LSU, LSM, and LST, speed up the ship-to-shore movement if they can beach and discharge their troops and equipment under the protection of troops already landed.

175. LANDING CRAFT ALLOCATION

Landing craft available to the RCT are allocated to the assault BLT's for the ship-to-shore movement based on the landing plan.

a. Enough craft should be available in the transport division to boat the assault elements of the *assault BLT's* in the first trip. If it is not practicable to boat the desired number of assault BLT's simultaneously, it is better to reduce the number of assault BLT's rather than to omit essential elements of any one BLT. Forward command, reconnaissance, and initial communication elements of the RCT and attached elements may accompany or follow the assault BLT's.

b. Enough landing craft may be withheld from the assault BLT's to provide for the immediate mobility of the *reserve BLT*. If the RCT reserves may be needed early, at least the reserve combat elements are loaded in landing craft and held in readiness out of range of shore batteries, yet near enough to the transport area to receive protection from air attack. These reserves are held aboard ship in rough sea or bad weather, or when it is probable that reserves will not be needed for some time. Landing of the RCT reserve can be carried out on a prearranged schedule or on call of the RCT commander. Unless the fire of coastal weapons or enemy air attack is probable when the reserves move to the shore, large landing craft or landing ships may be used. In this way large reserve units may be boated and landed intact in a minimum time.

176. LANDING FORMS

Landing forms consist of diagrams, tables, and schedules used with plans and orders for landing operations. They outline the ship-to-shore movement and in tabular form provide troop and naval units

with information needed for the conduct of the ship-to-shore movement. The following forms are pertinent to the RCT:

- a.* Landing schedule.
- b.* Landing craft availability table.
- c.* Landing craft employment plan.
- d.* Amphibious vehicle availability table and employment plan.
- e.* Consolidated landing diagram.

177. LANDING SCHEDULE

a. A landing schedule shows the beach, hour, and priorities of landing all RCT units and provides for the execution of the desired scheme of maneuver (fig. 16). The RCT commander prepares his landing schedule based on the division landing schedule. The schedule is prepared for each operation and is issued as an annex to the operation order.

b. In a tabular appendix to the landing schedule, the RCT commander prescribes priorities for the landing of units in the second and succeeding trips of landing craft (fig. 17). This appendix includes all personnel and their equipment landing after the first trip of landing craft. Based on these RCT priorities, each lower unit prescribes priorities for the second and succeeding trips of their landing craft.

c. The time designated for the first wave to land on a beach is called H-hour. The times that other waves or units go ashore is usually expressed in terms of H-hour plus or minus 2 minutes.

d. Careful planning is required to provide for the most efficient use of landing craft and the proper priority of the movement of troops and equipment to the beach. The priority established for debarking units after the first trip of landing craft provides a guide for the general debarkation scheme.

e. A schedule of priorities for units to be landed on call is incorporated in the priority table appendix. These units are assigned serial numbers to speed up the drafting of messages ordering them to land, and to lessen the chance of error in the transmittal of messages. These serial numbers are placed in column 1 of the priority table.

178. LANDING CRAFT AVAILABILITY TABLE

The landing craft availability table is a tabulation of the number of landing craft, by types, available within the transport division (fig. 18). This table is the basis for the assignment of landing craft to boat groups for the ship-to-shore movement. The transport division commander prepares and issues the table as an annex to his operation plan. The RCT commander receives the landing craft availability table early enough to use it in his preliminary planning. He requests

Annex 3 (Landing Schedule) to Opn O 23				
BEACH	BOAT GROUP NUMBER	TROOP UNIT	FROM SHIP	TIME OF LANDING
Red 1	1	BLT-3/6	LST-12 LST-16 LST-23 LST-6	H-Hour
Red 2	2	BLT-2/6	LST-6 LST-15 LST-24 LST-2	H-Hour
Red 1 or Red 2	3	BLT-1/6	LST-30 LST-3 LST-5 APA-64	On Order

Figure 16. RCT landing schedule.

Appendix A (RCT priority table) to Annex 3 (Landing Schedule)

to Opn O 23

SERIAL NO.	UNIT OR DETACH	APPROX PERS	MATERIEL, VEH, & EQUIP	BOATS REQUIRED	SHIP
623	Hq Co BLT 1/6	30	12 $\frac{1}{4}$ -Ton Trks with Trls	12 LCVPs	APA '64
624	Co D BLT 1/6	40	11 $\frac{1}{4}$ -Ton Trks with Trls	11 LCVPs	APA 64
625	Hq Co BLT 2/6	30	12 $\frac{1}{4}$ -Ton Trks with Trls	12 LCVPs	APA 206
626	Co H BLT 2/6	40	11 $\frac{1}{4}$ -Ton Trks with Trls	11 LCVPs	APA 206
(Priorities are shown for all units of the RCT landing after the first trip of boats.)					

Figure 17. RCT priority table.

Appendix B (Landing Craft Availability Table) to Annex 3 (Landing Schedule) to Opn 0 23						
TRANSPORTS	LCVP	LCM(3)	LCM(6)	LCC	LCP(R)	REMARKS
APA-64	19	1	2	2	1	2 LCVP not available before 15 Jun 51
APA-118	15	2	1	1	2	None
TOTAL	34	3	3	3	3	

Figure 18. Landing craft availability table.

LANDING CRAFT EMPLOYMENT PLAN TRANSPORT DIVISION 3 TRANSPORT GROUP 1 28 May 1951						
NUMBER OF CRAFT	TYPE	FROM	TO	TIME OF ARRIVAL	PERIOD ATTACHED	REMARKS
6	LCVP	AKA-9	APA-13	0615/2/15/-	Until released	
2	LCM(3)	AKA-9	APA-13	0615/2/15/-	Until released	
1	LCM(6)	AKA-9	APA-13	0615/2/15/-	Until released	

Figure 19. Landing craft employment plan.

additional craft needed to supplement the normal complement carried aboard the ships embarking the RCT.

179. LANDING CRAFT EMPLOYMENT PLAN

The landing craft employment plan is used for the assignment and movement of landing craft from the various ships to meet the requirements of the assault BLT's in the transport division (fig. 19).

a. The plan is prepared by the transport division commander and is based on RCT requirements. The RCT commander provides all

information for the form except information concerning the vessels from which the landing craft are to come. The transport division commander determines the vessels from which the landing craft are provided.

b. The RCT commander supplies the information on the number and types of landing craft required for the BLT's. Additional craft for assignment to ships carrying the assault BLT's may come from transports carrying the reserve BLT or RCT supporting units, and from assault cargo ships within the transport division.

c. The "time of arrival column" of this plan shows the time and date that landing craft will be available for landing operations. The "period attached column" indicates a properly scheduled return of landing craft to the parent ship.

180. AMPHIBIOUS VEHICLE AVAILABILITY TABLE AND EMPLOYMENT PLAN

This plan is prepared by the RCT commander, based on the division plan and on recommendations submitted by the assault BLT's. The table is prepared at the same time as the consolidated landing diagram. It shows in tabular form the same information that is shown diagrammatically in the consolidated landing diagram (fig. 20).

181. CONSOLIDATED LANDING DIAGRAM

a. The consolidated landing diagram is a schematic diagram showing the over-all formation for landing all units of the assault RCT (fig. 21). It designates the beaches for assault BLT's, and it illustrates the number and type of craft in each wave, the major tactical units in each wave, the landing time for each wave, free boats, and the method of landing the reserve BLT and other assault RCT units. It indicates the location of the RCT reserve, other assault RCT units, and the locations, number, and types of landing ships in the landing ship area. The line of departure, distance to the beach, and control vessels are also shown.

b. The RCT commander prepares the consolidated landing diagram, basing it on an extract from the division landing diagram and on the recommendations of the BLT commanders. When this diagram is issued as an annex to the RCT operation order, it is used by the BLT commanders as a basis for their landing diagrams. An extract of the consolidated landing diagram may be used as an annex to the BLT operation order.

Appendix C (Amphibious Vehicle Availability Table and Employment Plan) to Annex 3 (Landing Schedule) to Opn O 23					
LVT OR DUKW CARRIER	LVT(A)	NUMBER AND TYPE OF LVT AND DUKW			REMARKS
		LVT(A)(S)	LVT(4)	DUKW	
LST 53		10			
LST 184		10			
LST 178				30	
LST 212			28	6	
TOTAL		20	28	36	

LVT AND DUKW EMPLOYMENT PLAN							
WAVE		LVT(A)(S)	NUMBER AND TYPE OF LVT AND DUKW			LVT OR DUKW CARRIER	REMARKS
			LVT(A)(S)	LVT(4)	DUKW		
1			10			LST 53	
1			10			LST 184	
2				28		LST 212	

Figure 20. Amphibious vehicle availability table and employment plan; LVT and DUKW employment plan.

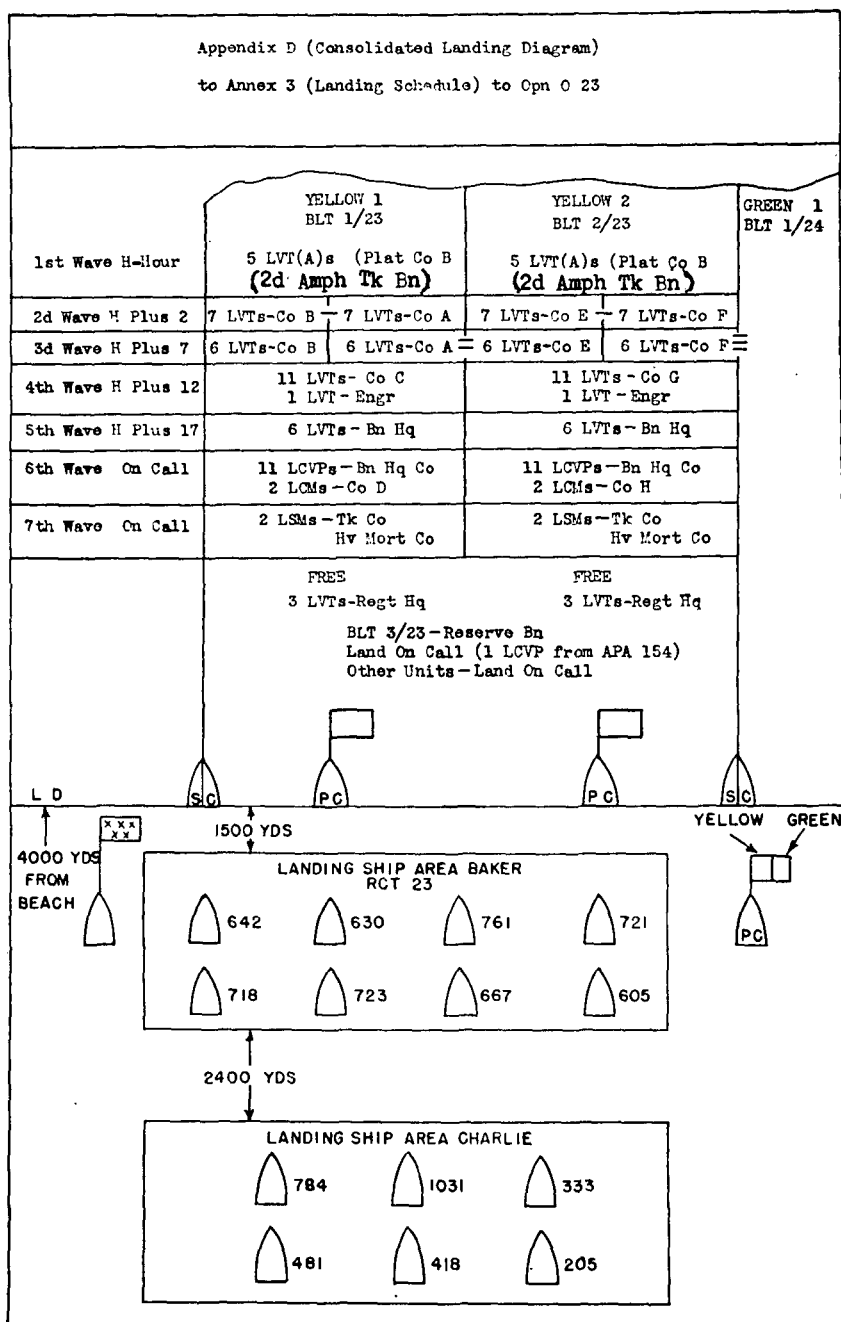


Figure 21. Consolidated landing diagram.

Section III. EXECUTION

182. GENERAL

The execution of the ship-to-shore movement of an assault RCT can be divided into two parts—the landing of the assault BLT's and the landing of reserves and supporting elements.

a. See FM 60-5 for a discussion of the landing of the assault BLT.

b. The ship-to-shore movement of the RCT reserve and supporting elements is planned to provide the maximum flexibility and speed. Reserves and supporting elements are organized into serials for flexibility and for the efficient use of landing craft. A serial consists of those troops, with their equipment, that are landed as a unit. For example, a reserve BLT, a field artillery battery, or a medical unit may make up a serial. Serials may be dispatched to any beach on call or on a prearranged schedule of priorities. An RCT which is in division or landing force reserve may be landed in a similar manner.

183. OPERATIONS IN THE TRANSPORT AREA

a. The landing phase of an amphibious operation begins when the transports arrive and take station in the transport area. To make sure that debarkation begins immediately after the ships take station, all vessels transporting troops and cargo prepare for debarkation before arriving in the transport area. After the landing craft are loaded, they go to the rendezvous areas where they are assembled into waves by wave commanders under the supervision of boat group commanders.

b. RCT reserves and certain supporting elements may be aboard transport division ships carrying the assault BLT's. When the availability of landing craft or the tactical plan requires them to be landed in a later trip of boats, these units may be held aboard ship in the transport area and debarked into landing craft at a later hour. The RCT's which are in division or landing force reserve during the initial landings may be held aboard ship far to the seaward of the transport areas. Plans are prepared to land these RCT's on any one of several beaches.

184. OPERATIONS IN THE LANDING SHIP AREA

Certain RCT elements may be transported to the objective area in landing ships or landing craft. These units may consist of assault elements that are to land in amphibious vehicles, or of heavy equipment and reserves to be landed directly from the landing ships. Upon arrival in the objective area, landing ships and landing craft take station in the landing ship area. Those vessels with amphibious vehicles aboard launch them in the landing ship area. There they

are formed into waves and guided to the line of departure by wave guides. Landing ships that have troops and cargo to be landed directly on the beach are directed and guided to the beach by the control group according to the landing schedule.

185. MOVEMENT FROM RENDEZVOUS AREA TO LINE OF DEPARTURE

a. After the boat waves have formed in the rendezvous area under the control of the boat group commander, a control vessel guides them in the proper sequence to the line of departure. Upon leaving the rendezvous area, all landing craft come under control of the control group. Orders and instructions are usually issued through the boat group of flotilla commander.

b. Upon arrival at the line of departure, the boat waves circle in their proper sequence seaward of the line until they are called up for dispatch to the beach. After the assault BLT's land, boat groups landing RCT reserves and supporting elements are moved from their rendezvous areas similarly, arriving at the line of departure on a previously determined schedule or immediately after the dispatch of the assault BLT's.

186. MOVEMENT FROM LINE OF DEPARTURE TO BEACH

The details of dispatching and guiding the boat waves transporting the assault BLT's from the line of departure to the beach is discussed in FM 60-5. Upon being called in by the RCT commander or his representative, RCT reserves and supporting elements are dispatched from the line of departure either by waves or by individual boat. All elements should be prepared to land by waves because this method delivers the element ready for immediate employment. However, individual dispatch may make more efficient use of landing craft and shore facilities. The method used depends on the characteristics of the beach, the tactical situation, and the landing craft requirements.

187. TRANSFER OPERATIONS

a. Where beach conditions, reefs, or offshore obstacles require the use of amphibious vehicles, it may be necessary to transfer loads from landing craft to amphibious vehicles. If transfer is contemplated, a transfer line is designated. This line is seaward of the reef or obstacle and as near to the beach as conditions permit. At this line, the loaded landing craft come alongside designated LVT's or similar amphibious vehicles and transfer their loads. Rhino barges (barges assembled from naval sheet steel pontons) with small cranes may be provided at the transfer line to transfer cargo and equipment. The control of

transfer operations is the responsibility of the control group. A control officer with a representative of the troop organization concerned directs the transfer operations for each beach.

b. Usually, when a difficult beach or reef is encountered, the assault BLT's land by amphibious vehicles directly from landing ships. When the number of amphibious vehicles is limited, a transfer operation may be needed to land RCT reserves and supporting elements. Transfer operations are time-consuming and vulnerable, and they are made only when clear channels and boat lanes to the beach cannot be found. See FM 60-5 for further details on BLT transfer operations.

CHAPTER 7

NAVAL GUNFIRE SUPPORT

Section I. INTRODUCTION

188. MISSION

The missions of naval gunfire support in an amphibious operation are to support the seizure of the objective by reducing or neutralizing shore installations that oppose the approach of the transports, to deny the enemy reinforcements in the landing area, to destroy or neutralize beach defenses that oppose the landing of troops, and to assist the advance of the troops after the landing has been made.

189. CAPABILITIES AND LIMITATIONS

The RCT commander must understand the capabilities and limitations of naval gunfire support in order that he may integrate it to maximum advantage with his own plans for his scheme of maneuver, artillery support, and air support.

a. Capabilities.

- (1) The wide variety of calibers, from the battleship's 16-inch main batteries down to the 20-mm machine gun, permits the selection of a weapon suitable for firing at any type of target.
- (2) A wide choice of projectiles with various fuze combinations, and with full, special, or reduced charges, makes naval ammunition suitable for any mission.
- (3) Power loading and mechanical ammunition supply give naval guns higher rates of fire than those of comparable calibers of field artillery.
- (4) The high muzzle velocity and the flat trajectory of naval guns produce accuracy, give a small deflection pattern, and make them valuable for destroying matériel targets, particularly those presenting vertical surfaces.
- (5) Mechanical and electronic fire control permit relatively accurate direct fire while the ship is moving. From large ships (battleships and cruisers) more than one target may be engaged at the same time.
- (6) The mobility of the supporting vessels enables them to select the best lines of fire and ranges for accomplishing the mission, to evade enemy counterfire.

Table II. Summary of Characteristics.—Fire Support Ships and Craft

TYPE AND CLASS	MISSOURI (BB)	BALTIMORE (CA)	BROOKLYN (CL)	SUMNER (DD)	LSM(R)	LCS
TONNAGE.....	45,000	13,600	9,700	2,200	1,175	383
LENGTH IN FEET.....	681	673	608	377	204	158
BEAM IN FEET.....	108	70	62	41	34	23
MAXIMUM DRAFT IN FEET.....	37	25	25	14	7'9"	5'10"
MAXIMUM SPEED IN KNOTS.....	30	33	33	34	13	15
ARMOR PLATE THICKNESS IN INCHES.....	16	6	5			
M TYPE GUNS.....	16"	8"	6"	5"	5"	3"
A NUMBER GUNS.....	9	9	15	6	1	1
I MAXIMUM RANGE IN YARDS.....	42,345	32,300	26,100	18,200	18,500	14,000
N MAXIMUM EFFECTIVE RANGE IN YARDS.....	32,000	26,000	21,000	15,000	15,000	9,000
B MAXIMUM RATE OF FIRE PER GUN PER MINUTE.....	1	4	10	15	15	
T PATTERN SIZE.....	500-600	400	250	125	125	
T TYPES OF PROJECTILES CARRIED.....	(¹)	400	250	(²)		
R BURSTING RADIUS IN YARDS.....	200	90	60	40	40	
Y MAGAZINE CAPACITY IN ROUNDS.....	1,080	1,350	3,750	2,100	350	302
S TYPE GUNS.....	5"	5"	5"			
E NUMBER GUNS.....	20	12	8			
C MAXIMUM RANGE IN YARDS.....	18,200	18,200	18,200			
O MAXIMUM EFFECTIVE RANGE IN YARDS.....	15,000	15,000	15,000			
D PATTERN SIZE.....	125	125	125			
A MAXIMUM RATE OF FIRE PER GUN PER MINUTE.....	15	15	15			
Y TYPES OF PROJECTILES CARRIED.....	(²)	15	15			

BURSTING RADIUS IN YARDS	40	40	40		
MAGAZINE CAPACITY IN ROUNDS	10, 200	5, 000	3, 800		
NUMBER OF 40-MM GUNS	76	48	28	4	4
NUMBER OF 40-MM BATTERY DIRECTORS				12	
NUMBER OF 20-MM GUNS	20	12	10	4	2
NUMBER OF MAIN BATTERY DIRECTORS	70	28	20	14	8
NUMBER OF SECONDARY BATTERY DIRECTORS	5	3	3	2	
TYPE AND NUMBER OF PLANES CARRIED	8	6	6		
NUMBER OF ROCKET LAUNCHERS	3	4	2		
TYPE OF ROCKETS					
MAXIMUM RANGE OF ROCKETS IN YARDS				20 MK 10 5"	10 MK 7 4. 5"
TYPE AND NUMBER OF MORTARS					
MAXIMUM RANGE OF MORTARS IN YARDS				5, 250 4-4. 2"	1, 120
					4, 500

² Common, AA common, illuminating, white phosphorus.

b. Limitations.

- (1) The flat trajectory makes fire on defiladed targets difficult. This limitation may be modified by using a reduced or special charge or by shifting the ship's position.
- (2) Communication between ship and shore depends on radio or visual means.
- (3) The difficulty in accurately fixing and maintaining the ship's position. Accuracy of unobserved fires is determined by the accuracy in determining the ship's position.
- (4) Unfavorable hydrographic conditions, such as shallow water, reefs, and bars, may force the ship into unfavorable locations relative to range and line of fire.
- (5) Naval gunfire must be observed to be most effective.
- (6) The range patterns are larger than range patterns of comparable field artillery weapons.
- (7) The ammunition supply for gunfire support is limited by the ship's magazine capacity and the need for keeping enough for protection against surface attack.
- (8) The action of enemy air and naval forces may cause abandonment of naval gunfire support when the ships are forced to defend themselves.

190. CLASSIFICATION OF FIRES

The several classifications of naval gunfire are interrelated. To completely describe a particular fire, it is usually necessary to use terms from several of the following classifications:

a. Effect Sought.

- (1) Destruction—deliberate, accurate gunfire to destroy a target.
- (2) Neutralization—rapid, accurate gunfire to hamper, interrupt, or prevent enemy fire, movement, or action.

b. Tactical Use.

- (1) Close supporting fire—gunfire on objectives within 600 yards of our supported forces.
- (2) Deep supporting fire—gunfire on objectives more than 600 yards from our supported forces.
- (3) Harassing fire—fire during relatively quiet periods to prevent enemy rest and recuperation, and to hamper movements.
- (4) Interdiction fire—intermittent gunfire on roads, junctions, railroads, canals, rivers, airfields, or other channeled routes of communication to prevent their free and uninterrupted use by the enemy.
- (5) Preparation fire—heavy prearranged gunfire on enemy positions just before an attack by our own forces.

- (6) Counterbattery fire—gunfire against enemy guns and fire control stations to neutralize or destroy them.
- (7) Illuminating fire—gunfire using illuminating shells to silhouette the enemy, to aid observation, or to aid friendly troop movements.

c. Degree of Prearrangement.

- (1) Prearranged or scheduled fires—gunfire planned in advance and executed at a predetermined time or during a predetermined period.
- (2) Call fires—fires by support ships at the call of troops ashore.
- (3) Opportunity fires—unplanned fires on newly discovered targets, or targets of a fleeting nature. The firing ship gets permission from the troop echelon to fire if the fire is close to the troops. If the fire is deep, the firing ship can fire only in its assigned sector of responsibility.

d. Techniques of Delivery.

- (1) Direct fire—gunfire on the target by director or by direct observation from the gun.
- (2) Indirect fire—gunfire on a target that cannot be observed from the guns nor located by directors.

e. Type of Fire.

- (1) Area fire—fire on a prescribed area, usually for neutralization.
- (2) Point fire—fire at a definite matériel target to destroy it.
- (3) Defilade or reverse slope fire—fire on a target located just over a hill or ridge.
- (4) Enfilade fire—fire from such a position that the range pattern of the fall of shot coincides with the long axis of the target.

f. Type of Support.

- (1) Direct support—fire at the request of a troop unit by a ship designated to support that particular unit.
- (2) General support—fire in support of the landing force as a whole, or an echelon of it, by ships not assigned a direct support role.

191. FIRE SUPPORT AREAS AND SECTORS OF RESPONSIBILITY

To prevent interference between ships carrying out their support missions and to provide for troop safety ashore, fire support areas at sea and sectors of responsibility ashore are clearly defined (fig. 22).

a. Each fire support unit is assigned a definite sea area in which to operate. These areas, called fire support areas, are shown on the operations chart and are given a name or a number.

b. The objective area is divided into sectors of responsibility. Fire support ships are responsible for neutralizing or destroying enemy

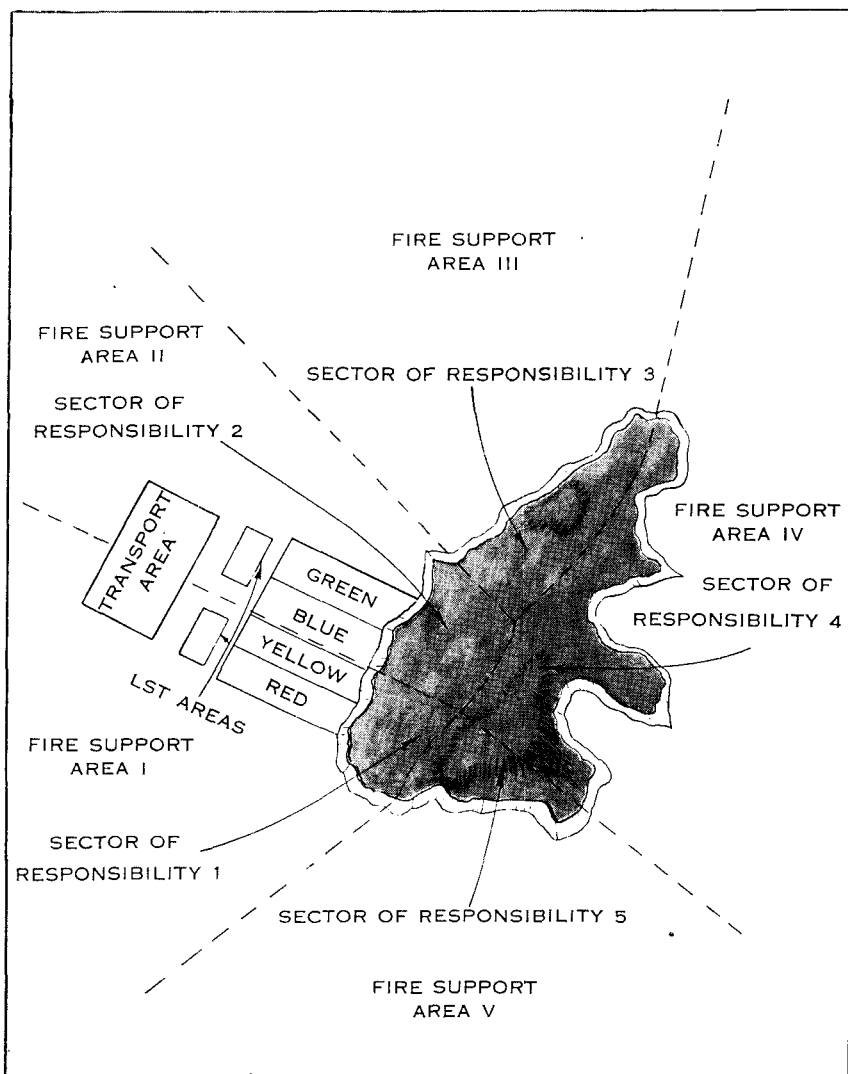


Figure 22. Fire support sectors of responsibility (schematic).

targets in the sectors assigned to them. The original sectors are shown on the operations chart but changes are usually necessary as the land action progresses.

192. SUPPORT SHIPS

a. Battleships. Using direct fire at short ranges, the main batteries (16- and 14-inch) of battleships can destroy any type of fortification likely to be encountered in amphibious operations. Secondary batteries (5-inch) are suitable for close support missions, and the large

amount of ammunition carried and the high rate of fire of these weapons make them highly suitable for area targets requiring a large expenditure of ammunition. Battleships are most commonly employed in general support of the landing force (corps or division), but when fortifications are expected to be encountered that only a battleship can reduce, they may be employed in direct support of an RCT.

b. Heavy Cruisers. The main batteries (8-inch) of heavy cruisers are effective against all but the heaviest type of fortifications. Secondary batteries (5-inch) are well suited for neutralization fire. These ships carry a large supply of ammunition and organic spotting planes so that they are best employed in direct support of an RCT or division.

c. Light Cruisers. The suitability of the light cruiser's main (6-inch) and secondary (5-inch) batteries for close supporting neutralization fires, the amount of ammunition carried, and the organic spotting aircraft make this ship ideal for direct support of a BLT or an RCT.

d. Destroyers. The 5-inch armament of the destroyer delivers close supporting neutralization fire. Destroyers are very maneuverable, have a simple ship gunnery organization, and are most commonly employed in direct support of assault BLT's.

e. Landing Ships, Medium, Rocket. These ships are equipped with a 5-inch gun, 5-inch rocket launchers, 40-mm guns, 20-mm guns, and 4.2-inch mortars. Using direct fire, the 5-inch gun is effective against lightly protected targets visible from the sea. Because of the rapid rate of fire of the rocket batteries, the steep angle of fall of the rockets, and the large amount of ammunition carried, this weapon is used when the neutralization of large defiladed target areas is required. However, because of excessive dispersion, the line of fire is not allowed to pass over friendly troops. LSMR mortar batteries can neutralize small targets in deep defilade. LSMR's are employed to deliver a heavy volume of rocket fire on the landing beaches and adjacent areas. After the landing, they may be used in direct support of any echelon that can effectively employ them, and in general support of the landing force.

Section II. ORGANIZATION

193. NAVAL ORGANIZATION

a. Naval organization for gunfire support consists of the tactical organization of the individual ships and craft into suitable fire support groups, and the staff organization required to plan and execute the gunfire support.

b. The *fire support group* consists of enough numbers and types of

fire support ships and support craft, organized into units, to provide naval gunfire support for the landing force. Single ships or a group of ships may constitute a fire support group.

194. SCOPE OF ORGANIZATION

Each echelon of the landing force from the landing force level down to and including the BLT is provided with a specially trained naval gunfire team. Each of these teams is headed by a naval gunfire liaison officer (NGLO) who acts as a special staff officer on naval gunfire matters for his unit commander. In addition, when direct support ships are assigned to support a troop echelon, the naval gunfire team assigns missions to these ships.

195. COMMAND, CONTROL, AND LIAISON

Naval officers always *command* fire support ships and craft. However, when ships and craft are assigned to direct support of the RCT, *control* is delegated to the RCT by the attack force commander. This control consists of the authority to designate targets, to control the beginning and cessation of fire, and to designate the line of fire subject to the assigned fire support area and the safe navigation of the ship. The naval *liaison* officer with the RCT works directly with the fire support ship's gunnery officer. During the period between the beginning of the ship-to-shore movement and the time the artillery fire direction center is established ashore, the naval gunfire liaison officer accompanies the regimental combat team commander. When the field artillery is in position and prepared to support the regiment, the naval gunfire liaison officer becomes a member of the fire support coordination center (FSCC) (fig. 23).

Section III. EMPLOYMENT OF NAVAL GUNFIRE SUPPORT

196. PRINCIPLES OF EMPLOYMENT

In an amphibious operation, naval gunfire substitutes for field artillery in support of the landing force until field artillery can land and be placed in action. Thereafter, naval gunfire supplements and reinforces field artillery fire as long as suitable targets are within range. Naval gunfire support is used in all three major phases of support—pre-D-day, D-day, and post-D-day.

197. PRE-D-DAY BOMBARDMENT

During the pre-D-day bombardment, the missions of naval gunfire support are to prepare the objective for assault by systematically destroying all known enemy installations and defenses, and to assist

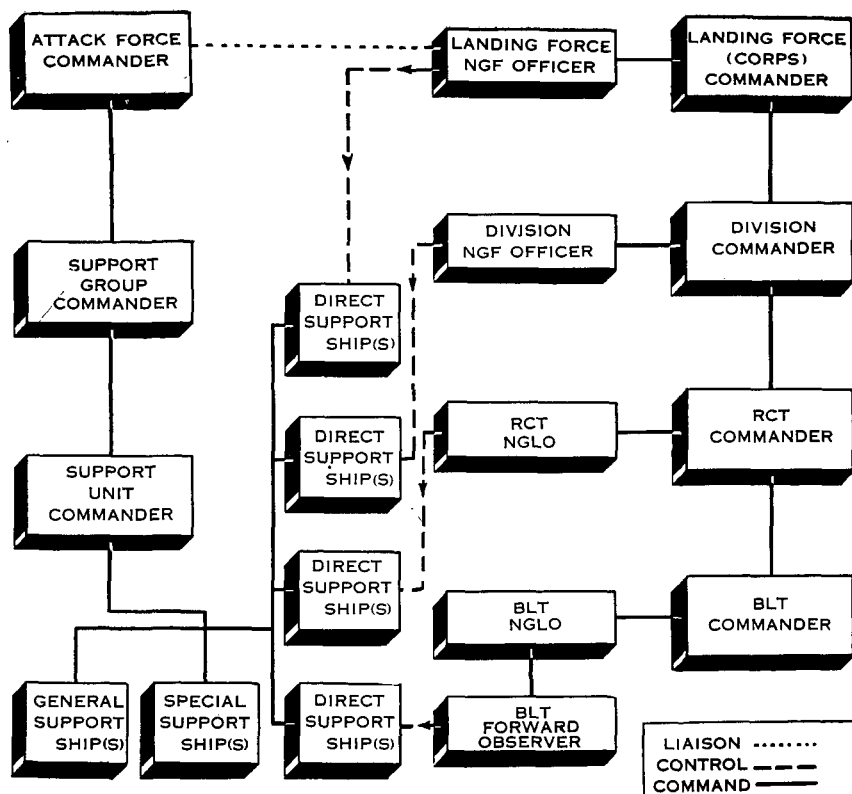


Figure 23. Control and liaison relationship for naval gunfire support.

in isolating the landing area by destroying or interdicting routes of communication. The program of destruction is carried out according to a predetermined target priority schedule prescribed by the naval commander. The general pattern of the bombardment does not disclose the points selected for the actual landing.

198. D-DAY BOMBARDMENT

a. During D-day, naval gunfire seeks to neutralize or destroy enemy defenses which can seriously oppose the landing of troops and their advance inland, and assists in isolating the landing area by destroying or interdicting routes of communication.

b. D-day fires include—

- (1) *Counterbattery.*
- (2) *Neutralization or destruction* of defenses and weapons capable of placing direct or indirect fire on assault waves or landing beaches.
- (3) *An intense volume of fire*, similar to an artillery preparation, delivered on the immediate beach area beginning about the

time the assault waves cross the line of departure and continuing until the first wave reaches the limit of safety short of the beach.

- (4) *Prearranged close supporting fires* delivered on schedule to protect the assault waves during their landing, deployment and advance inland. These fires continue until the shore fire control parties landed with the assault waves are prepared to control close support fires. This schedule is based on the expected rate of advance of the troops but provision is made for lifting or repeating the fire to fit the actual advance.
- (5) *Deep supporting fire* throughout D-day and *illuminating, harassing, and interdicting fires* during the following night.

199. POST-D-DAY FIRES

After D-day, naval gunfire supports the landing force until the fires are no longer required or until the advance is beyond supporting range. During this period, naval gunfire support is used to—

- a. Prevent counterlandings and reinforcement or evacuation of the objective area by the enemy.
- b. Deliver close and deep supporting, harassing, interdicting, and illuminating fires requested by the landing force.
- c. Reinforce artillery fires and destroy targets that are beyond the capabilities of field artillery.
- d. Provide a highly mobile and flexible source of fire support for landing force patrols operating along the coastline, and for the support of subsidiary landings.

Section IV. SHORE FIRE CONTROL

200. NAVAL GUNFIRE TEAMS

a. Naval gunfire teams are provided for all echelons of the landing force down to and including BLT's. Naval gunfire officers and liaison officers act as specific staff officers to the commander. The naval gunfire liaison officers supervise the naval gunfire forward observers or spotters by monitoring the requests for and conduct of naval gunfire missions.

b. The RCT is provided with a naval gunfire team headed by a naval officer who is also the naval gunfire liaison officer. He advises the RCT commander on the employment of naval gunfire, assists in preparing and executing gunfire support plans, assists in coordinating naval gunfire with other support, and supervises and coordinates the functioning of naval gunfire teams at BLT level. He also assigns missions for the RCT direct support ship or ships providing fire support for the RCT.

201. SHORE FIRE CONTROL PARTY

A shore fire control party is assigned to each BLT. It consists of a naval gunfire liaison team and a naval gunfire spotter team. The naval gunfire liaison team is composed of the naval gunfire liaison officer, a naval officer, and the enlisted men to operate and maintain the communication equipment. The naval gunfire spotting team consists of a naval gunfire spotter (an artillery observer), an enlisted assistant observer, and enlisted radio operators, wiremen, drivers, and personnel for operating and maintaining the team equipment.

202. SHORE FIRE CONTROL PROCEDURE

Shore fire control procedure is the technique of placing naval gunfire on selected targets in the quickest, most effective manner. The observer or the controlling agency designates the target by a target designation system superimposed on a map, by coordinates, or by reference to a point known to the ship and located by the observer. After the first rounds have landed, the observer makes the corrections to bring the rounds on the target, and then he requests fire for effect. Fire for effect may be followed by a command for additional fire on the same target, a shift to a new target, or a command to cease fire.

203. COMMUNICATION

a. Delivery of effective naval gunfire support depends on good communication. Radio is the only effective means of communication between the observer or the controlling agency and the firing ship (figs. 24 and 25). Whenever possible, wire is used between observers and their controlling headquarters. The communication equipment of the RCT naval gunfire team consists of two medium high frequency radios and one very high frequency radio for operating in the following nets:

- (1) *Naval Gunfire Control Net.* This net is primarily used to request fire support and to pass information between the landing force and the attack force, and between the attack force commander and the fire support ships. In case of failure of wire or radio communication between BLT's and RCT's, the request for naval gunfire support is made on the naval gunfire control net. The commander of the naval attack force acts as net control.
- (2) *Shore Fire Control Spotting Net.* This net is provided to conduct fire of the ship in direct support of the RCT. When no direct support ship is assigned to the RCT, this net is used to monitor traffic between observers with the BLT's and ships in direct support of the BLT's, and to give the firing ship a reference point for fire control.

- (3) *Division Naval Gunfire Net (VHF)*. This net provides communication between all naval gunfire teams of a division, and can be used as a fire request or control net in an emergency.

b. When it becomes necessary for the firing ship to locate the observer, a radar beacon is provided for assignment to the shore fire control party of which the observer is a member.

Section V. EXECUTION OF NAVAL GUNFIRE SUPPORT

204. PRE-D-DAY BOMBARDMENT

The pre-D-day bombardment, usually conducted by the advance force commander, is restricted to deliberate destruction of enemy installations by heavy ships. New targets are located and intelligence information is gathered during this phase from photographic and visual reconnaissance, underwater demolition team and mine-sweeping operations, and the observed results of firing.

205. D-DAY BOMBARDMENT

a. The execution of the D-day bombardment is more difficult than that of the pre-D-day bombardment because of the need for perfect timing and coordination with the landing force during the ship-to-shore movement and the assault of initial objectives. Support begins with counterbattery fires to cover the approach of the transports. It continues during the debarkation and movement to the line of departure. After the boats leave the line of departure, a preparation of maximum intensity is put on the landing beaches by all weapons to neutralize the beach defenses. The maximum number of support craft lead the assault waves to assist in neutralizing landing beaches and their flanks. After the beach preparation, prearranged fires continue to lift ahead of and to the flanks of the advancing troops. Tactical air observers, naval spotting planes, or liaison type planes observe progress and recommend changes in prearranged fires according to actual troop advances. Air observers and observers in landing craft or vehicles search for and bring fire on targets of opportunity. After observation and communication are established ashore, shore fire control parties take over control of the fire of the assigned direct support ships.

b. BLT commanders can use their direct support ships without coordinating through RCT headquarters, provided it does not endanger adjacent units. The RCT commander decides on the use of naval gunfire support when requests are made for coordination by BLT commanders, or when the RCT commander deems it necessary. RCT commanders obtain fire support on targets of opportunity from any ships assigned to direct support of the RCT. Requests for these fires

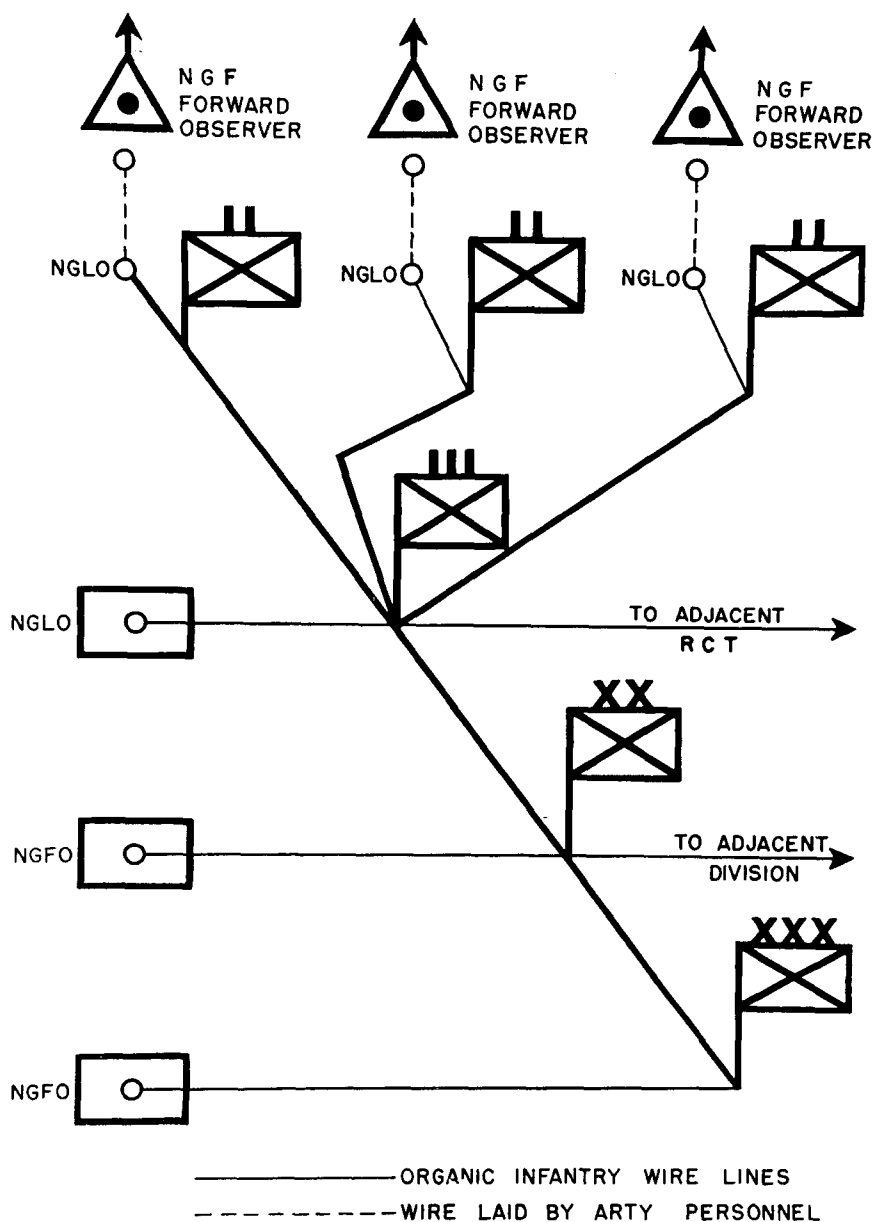


Figure 24. Naval gunfire and infantry command wire nets.

are relayed by the naval gunfire liaison officer with the RCT. If the ship has a plane spotter, he searches for and calls for fire on targets of opportunity within the sector of responsibility assigned to the support ship.

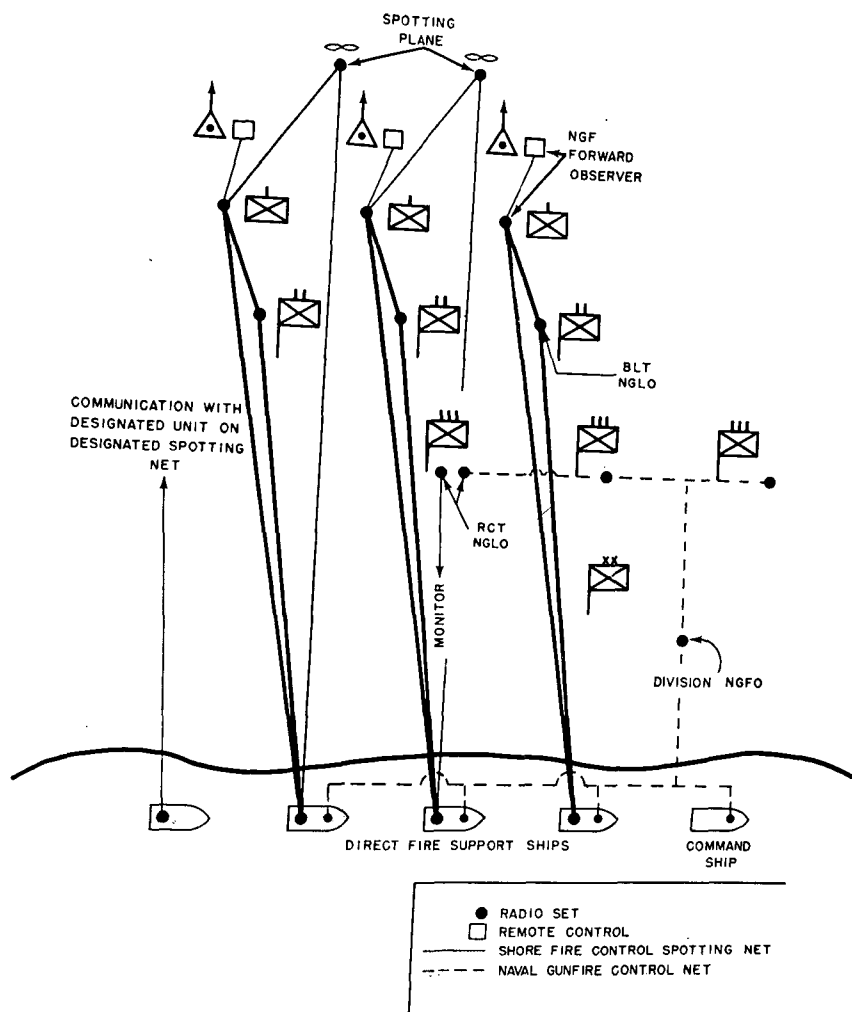


Figure 25. Naval gunfire nets.

206. POST-D-DAY FIRES

a. Close and deep supporting naval fire continues after D-day. Naval gunfire support is similar to artillery support during this period and has the same general purpose. The greatest limitation is the difficulty of maintaining the direct observation needed for effective fire. The greatest capabilities are the range and destructive power of the heavier guns, plus the mobility of the firing ships. During the attack, naval gunfire can be used for preparations, prearranged fires, fires on targets of opportunity, fires to protect reorganization, defensive fires, and harassing, interdicting, and illuminating fires.

b. The use of naval gunfire support on targets of opportunity is

similar to that discussed in the D-day phase. Preparation, harassing, interdicting, and illuminating fire plans begin with the BLT's. These plans are coordinated with plans for the use of artillery and air support and are sent to the RCT commander for consolidation. Each succeeding commander forwards the approved plans to the next higher commander. Approved or modified plans are then returned to lower commanders. Plans for illuminating fires require a particularly high degree of coordination to avoid interference between units.

c. Support ships are relieved periodically to replenish ammunition and fuel, to resupply, and to rest the crews. They may also require relief because of casualties to personnel and matériel. These reliefs are accomplished when they do not interfere with the support of shore operations. Therefore, the landing force commander recommends specific times for relief. Reliefs are made early enough for the relief vessels to be properly briefed for their support plans for the day, or for night schedules.

Section VI. PLANNING AND ORDERS

207. RESPONSIBILITY AND SEQUENCE OF PLANNING

a. The attack force commander is responsible for the over-all naval gunfire support plan and its execution. The basic considerations in any gunfire support plan are the—

- (1) Selection of targets.
- (2) Priority of targets.
- (3) Selection of means to deliver the gunfire support.
- (4) Timing of fire relative to landing force operations.

b. Selection of targets is the prerogative of the landing force commander. Priority of targets and selection of delivery means are the responsibility of the attack force commander. The timing of fire is the responsibility of the landing force commander.

c. The landing force commander determines the landing force requirements for naval gunfire for the pre-D-day, D-day, and post-D-day periods. He bases his decision on the consolidated requests submitted by landing force units in addition to those required for the landing force as a whole. He submits his landing force requirements to the attack force commander.

d. The attack force commander consolidates these landing force requirements with those required for the support of naval and air operations in the objective area. From these requirements he determines what ships are required and what missions they will carry out.

e. Naval gunfire officers work closely with naval staff gunnery officers in preparing the details of pre-D-day and D-day plans.

f. Pertinent extracts of the final plans and additional instructions

for naval gunfire teams with the landing force are included as an annex to the operations orders issued by the landing force commander.

208. OVER-ALL PLAN CONSIDERATIONS

a. Pre-D-day.

- (1) When the selected landing area is heavily organized for defense, with the bulk of the defenders occupying fixed defenses, the major planning objective for the pre-D-day bombardment is to insure the destruction of direct and indirect fire weapons that can oppose ship-to-shore movement, landing, deployment, and inland advance of the troops. Destruction in the landing area is matched by similar destruction in other possible landing areas.
- (2) When the selected landing area is lightly defended, with the bulk of the enemy force in reserve, a program of destruction may be a disadvantage because it tends to disclose the landing area. Under these conditions, pre-D-day operations are conducted primarily against enemy reserves and routes of communication. The area is isolated by a program of interdiction against all bottlenecks on logical routes for enemy reserves moving into the landing area. For tactical deception, similar operations are conducted in the vicinity of other possible landing beaches.

b. D-day. The major planning objectives for D-day are to neutralize all remaining weapons that can oppose the ship-to-shore movement, landing, deployment, and advance inland, and to isolate the area by interdicting routes for enemy reserves. These objectives are accomplished by a prearranged gunfire support plan to neutralize the landing area by a bombardment on the beaches as the first wave of the ship-to-shore movement approaches the beaches, and to deliver close and deep supporting fires as the troops land and advance, and to deliver fires on targets of opportunity.

c. Post-D-day. After D-day, naval gunfire continues to support the landing force to the limit of its range, or until no longer needed, by executing close and deep support missions, by interdicting routes used by enemy reserves, and by firing on targets of opportunity.

209. PREPARATION OF THE NAVAL GUNFIRE PLAN

a. On receipt of the directive for the operation, the landing force naval gunfire officer studies the objective, using intelligence obtained from the naval intelligence officer and the target information center of the fire support coordination center (FSCC). He prepares plans for the over-all requirements. He informs the landing force commander how naval gunfire can best support any proposed scheme of

maneuver. From his study of the enemy defenses, he makes recommendations to the landing force commander on the advisability of firing a pre-D-day bombardment. From his study of the enemy defenses and dispositions, he recommends general types of targets and areas that may best be attacked by naval gunfire prior to and on D-day. He submits these plans to the FSCC where they are coordinated with similar recommendations made by the landing force air officer so that all vital targets are covered without unnecessary duplication. At this stage of the planning, specific answers as to the amounts and types of ammunition and ships and craft are probably not available, but all available information is used in preparing the estimate.

b. Preparation of the pre-D-day detailed requirements includes—

- (1) Selection of targets for destruction and the priority of destruction by types. This is usually prepared in overlay form.
- (2) Other fire missions such as interdiction, harassing, and camouflage stripping that most effectively support the maneuver of the landing force. This requirement is usually submitted in overlay form.
- (3) The amount and types of ammunition required for destruction and other missions.
- (4) The duration of the pre-D-day bombardment in terms of ship-firing hours.
- (5) The number and types of ships, craft, and high performance observation aircraft required.
- (6) The sectors of responsibility (submitted in overlay form).

c. Preparation of the D-day detailed requirements includes—

- (1) An overlay showing individual targets or areas to be neutralized, required amounts of ammunition by caliber, and the exact period of time with respect to H-hour during which this neutralization will be accomplished.
- (2) The amount and type of ammunition for prearranged fires and fires on targets of opportunity.
- (3) The assignment of ships and high performance spotting aircraft to direct support of specific troop units.
- (4) The number, type, and assignment of general support ships to sectors of responsibility and fire support areas.

d. Preparation of the post-D-day detailed requirements includes the—

- (1) Estimated daily expenditure of ammunition until the landing force artillery is established ashore. This estimate is based on the nature and extent of anticipated enemy resistance.
- (2) Estimated daily expenditure of ammunition after the landing force artillery is established ashore.
- (3) Estimated duration of the operation or portion of the operation in which naval gunfire is required.

- (4) Number and types of direct and general support ships and craft required for neutralization and destruction. If heavy resistance is expected to continue, direct support ships are assigned on the basis of one per assault BLT. When the destruction of fortifications is beyond the capabilities of artillery, direct or general support ships of suitable type are assigned. Support craft are provided for troop units that are expected to make a lateral movement along the coastline.

210. NAVAL GUNFIRE SUPPORT ANNEX TO RCT OPERATION ORDER

The naval gunfire support annex to the RCT operation order is based on the naval attack force gunfire annex. The following is a sample form for the naval gunfire support annex:

CLASSIFICATION

(Secret or Top Secret)

Issuing command

Place of issue

Date and time of issue

Annex _____ (Naval Gunfire Support) to Opn 0 _____. (This annex is derived from annex _____ to naval attack force plan _____. Pertinent extracts from it are provided.)

Maps, charts, photos: (Refer to those needed to understand the annex.)

Task organization: (Assignment of ships and craft for direct and general support missions.)

1. INFORMATION

a. References to operation plans, annexes, and appropriate intelligence reports; additional enemy information when necessary or desirable.

b. Information of support to be provided by other forces, including preliminary bombardment by fire support units and aircraft of the advance force.

2. MISSION

The general mission to be accomplished by fire support units.

3. SPECIFIC MISSIONS FOR LOWER UNITS (Detailed information and instructions for the execution of naval gunfire support).

a, b, c, d, e, f, etc. Information on naval gunfire for pre-D-day fires, D-day fires, and for continuation of support.

CLASSIFICATION

CLASSIFICATION

a. Detailed instructions applicable to two or more units of the entire force. The following special instructions are included:

- (1) Priority of fires.
- (2) Assignment of fire support ships.
- (3) Relief of fire support ships.
- (4) Measures for repetition, lifting, or modification of scheduled fires.
- (5) Employment of illuminating, harassing, and interdicting fires.
- (6) Instructions for spotting planes.
- (7) Employment of fuzes and projectiles.
- (8) Use of smoke projectiles.
- (9) Instructions (other than communication) to artillery forward observers.
- (10) Special employment of support craft.
- (11) Coordination of naval gunfire with air and artillery.
- (12) Measures for troop safety.
- (13) Instructions for fires on targets of opportunity.
- (14) Reports required.

4. LOGISTICS

a. Ammunition.

- (1) Initial loadings and provisions for replenishment.
- (2) Restrictions on use, if any.

b. Equipment. Special instructions relative to equipment of shore fire control parties.

5. SIGNAL COMMUNICATION

a. Refer to current and effective signal annexes, signal operating instructions, and signal standing operating procedures.

b. Refer to shore fire control communication appendix.

(Commander's name)

(Rank)

APPENDIXES: (Normal)

1. Schedule of Fires—Pre-D-day Bombardment.
2. Schedule of Fires—D-day.
3. Operations Chart.
4. Shore-fire Control Communication.

DISTRIBUTION:

AUTHENTICATION:

CLASSIFICATION

Section VII. COORDINATION OF ARTILLERY, AIR, AND NAVAL GUNFIRE SUPPORT

211. PRINCIPLES AND RESPONSIBILITY OF COORDINATION

a. The following principles govern the coordination of supporting arms:

- (1) Each supporting arm is employed on missions most suited to its capabilities.
- (2) Unnecessary duplication of missions is avoided.
- (3) Missions executed by one arm must not unduly endanger other supporting arms or assault forces.
- (4) Missions are accomplished by the lowest echelon having the facilities available.
- (5) Coordination is accomplished by the highest echelon affected by the mission.
- (6) All supporting arms and the supported force use a common system for target designation.

b. The coordination of naval gunfire, support aircraft, and artillery fire is a command responsibility. It is exercised by the attack force commander when the control of air and naval gunfire support is established on board ship. The attack force commander establishes an SACC (supporting arms coordination center) afloat. This is similar to the FSCC when landing forces are ashore. When control is shifted ashore, the responsibility for coordination is transferred to the landing force commander.

c. After the initial landing, artillery commanders in each echelon normally coordinate the three supporting arms, because of their knowledge of support requirements and the dominant supporting role of artillery. Commanders prescribe the scope of responsibility and authority of the fire support coordinators.

d. On RCT, division, and landing force (corps) level, the coordination of supporting arms is carried out by an agency under the artillery commander called the fire support coordination center (FSCC).

212. CAPABILITIES OF SUPPORTING ARMS

The effectiveness of the support given the landing force by the supporting arms varies with the effectiveness of communication. It varies also with the type, accuracy, mobility, and range of their weapons and ammunition, their ability to mass fires, and their speed in executing fire missions.

a. Command Relationship.

- (1) Artillery is an organic component of the landing force; light artillery habitually works with the same unit.

- (2) Fire support ships are not organic parts of the landing force, but the majority of ships are given direct support missions requiring close command relationship during those assignments.
 - (3) Air units are not organic to the landing force, nor are they in direct support for periods exceeding a single mission.
- b. *Weapons, Ammunition, and Accuracy.*
- (1) *Artillery units* supporting the RCT are usually armed with light- and medium-caliber weapons. A wide variety of fuzes and projectiles is available. Artillery, within the capabilities of the weapons and ammunition available, is designed especially for the support of the attacking force. It is effective when employed against either area or point targets. Visual observation facilitates fire adjustment and conserves ammunition.
 - (2) *Fire support ships* of the attack force are armed with weapons of all calibers; those in support of the RCT are usually of medium caliber. A wide variety of projectiles and fuzes is available for the attack of any type of target. Direct fire is very accurate in attacking small targets at short ranges.
 - (3) *Support aircraft* are usually carrier-based, but if the landing area is within range of land-based aircraft, all types may be used. Armament includes medium and heavy rockets, incendiary mixtures, and light, medium, and heavy bombs with a variety of fuzes. Small targets are most accurately attacked when using dive or steep glide methods, but accuracy is entirely dependent on the pilots' ability to identify and properly attack each target.
- c. *Mobility and Range.*
- (1) *Artillery* cannot render effective support while moving.
 - (2) Subject to favorable hydrographic conditions, *navy ships and craft* are capable of good mobility along a coastline, and have considerable ability to reach targets defiladed from or beyond the range of artillery.
 - (3) The *air arm* is characterized by outstanding mobility and great range. Aircraft can be employed on missions beyond the range of artillery or naval gunfire, and they can attack targets defiladed from artillery or naval gunfire.
- d. *Ability to Mass Fires.*
- (1) *Artillery* can mass fires rapidly and accurately on any target within its capabilities. Visual observation of the target conserves ammunition, time, and energy by confirming the existence of a suitable target and by facilitating adjustment.
 - (2) *Naval fires* are massed only with great difficulty because each

ship must be adjusted individually. This limitation is partially overcome by the large number of guns on each ship and by their high rate of fire.

- (3) The *air arm* can mass fire on any target within the operational radius of the aircraft, but its efficiency depends on individual pilot skill in identifying and striking the target.

e. Speed of Execution. Artillery (and naval gunfire to a lesser extent) can execute missions rapidly because of its close integration with the infantry. More time is necessary to get air action against a target because the aircraft must be obtained from the controlling authority, the target must be identified, and the aircraft placed in formation for the attack.

f. Vulnerability and Continuity of Action.

- (1) *Artillery* is least affected by enemy air and artillery because it disperses and conceals its guns and installations. It can stay in action for a long time.
- (2) *Naval units* are vulnerable to coast defense fire and air attacks. Its ability to stay in action is limited by its inability to deliver accurate unobserved fires except by electronic means.
- (3) *Air* is vulnerable to enemy air action and antiaircraft fire. It cannot deliver unobserved support except by electronic means. Its ability to stay in action is limited by the requirement for a suitable operating base. Aircraft carriers are vulnerable to enemy air, surface, and submarine attack.

g. Comparative Capabilities and Limitations.

- (1) *Destruction.* The relative accuracy, heavy calibers, and high muzzle velocity of naval gunfire make it superior for destruction missions at short ranges using direct fire. Light and medium artillery lack muzzle velocity and weight for this type of mission. Limited only by identification of the target, aircraft using heavy rockets can be used to destroy fortifications.
- (2) *Neutralization.* Because of superior liaison, speed of execution, accuracy, speed in massing fires, and continuity of action, artillery is superior for neutralization. Naval gunfire is valuable for supplementing artillery in neutralizing enemy personnel. However, naval fire cannot be quickly massed, nor can it be used effectively in darkness. Aircraft can put a large volume of fire on an area in a short time, but they are even more sensitive to darkness and poor visibility than are naval units.
- (3) *Harassment.* Artillery is best suited for delivering harassing fire because of its ability to fire in darkness with comparative

accuracy. Naval gunfire can be used for harassing missions on large areas when the areas are not close to friendly installations. Support aircraft can be used for night and day harassing missions.

- (4) *Interdiction.* Because of their range, aircraft are best suited for distant interdiction. Artillery is superior to naval gunfire. Naval gunfire can be used when the points to be interdicted are visible from the ship, or when observers can adjust this fire.
- (5) *Illuminating Missions.* Artillery and naval gunfire, in that order, are more suitable for illuminating missions than are aircraft. Aircraft can be used beyond the range of artillery or naval gunfire in detecting enemy movement.

213. FIRE SUPPORT COORDINATION CENTER

a. The fire support coordination center (FSCC) is an installation established by direct support artillery battalions and by divisions and higher levels to coordinate artillery support, air support, and naval gunfire support. Artillery officers are in charge of the FSCC's at each echelon. An FSCC at RCT level is not considered necessary.

b. The FSCC gives the commander advice and recommendations on the employment of the supporting arms, during both planning and operations. Within the authority granted by the commander, it resolves interunit conflicts. It keeps a record of targets with an analysis of their characteristics and an estimate of the best means of attacking them, and makes a damage assessment after each attack.

c. The organization consists of a target information section and artillery, naval gunfire, air, and antiaircraft liaison officers. The FSCC is not an additional echelon having command functions, nor does it direct and control arms other than artillery. The center is an advisory and coordinating body only, and its personnel are drawn from personnel already in the organizations. All representatives are considered coequal with the artillery officer even though he is the coordinator. Those matters of technique not requiring coordination are handled directly by representatives with their respective arms. Artillery missions are ordered executed by the artillery officer; naval gunfire missions are requested by the naval representative. Recommendations for air support are forwarded to the G3 for approval. The G3 submits the approved recommendations as requests, using the air-ground operations system communication channel.

d. The FSCC has communication channels for collecting and disseminating target information and for communicating with FSCC's of higher and lower echelons. Normal artillery circuits and nets are used to the maximum extent. Representatives of supporting arms

maintain communication with the control agencies of their supporting arms, using normal wire and radio nets.

214. FSCC COORDINATION DURING PLANNING

a. In planning, the objective of the FSCC is to coordinate all supporting arms. Coordination of planning within the landing force is the function of the landing force commander. He uses the FSCC as his agency to carry out this function. Representatives of the supporting arms work together in the preparation of their detailed support plans. When these plans are complete, the coordinator examines them and makes sure that all possible targets are covered, that no duplications exist, and that there is no unwarranted interference between arms. He then submits the plans to the commander for approval.

b. The requirements for coordination are included in each of the artillery, naval gunfire, and air support annexes if they do not warrant the preparation of a separate fire support coordination plan annex.

c. Some of the measures that may appear in the plan are—

- (1) Zones of responsibility for the attack of targets by artillery, naval gunfire, and aircraft.
- (2) A list of enemy installations that are not to be fired on (for example, hospitals) and their coordinate locations.
- (3) Instructions on the use of smoke.
- (4) Counterbattery and countermortar policies.
- (5) Instructions for illuminating fires.
- (6) Restrictions on the use of certain types of fuzes and ammunition (for example, VT fuze when friendly air is overhead).
- (7) Safety measures for protecting planes from artillery and naval fires; bomb safety line.

215. FSCC COORDINATION DURING OPERATIONS

a. Coordination during operations begins with the pre-D-day bombardment, and continues during the D-day bombardment, the landing, and the assault phase. It functions as long as the operation continues to be supported by air or naval gunfire, or both. Coordination during the pre-D-day and D-day bombardment phases is accomplished mainly by a well-integrated prearranged fire plan. As the artillery is established ashore, coordination is accomplished by both prearrangement and on-the-spot actions as new targets are uncovered.

b. The lowest echelons of the landing force having direct support means for executing fire missions are the RCT and BLT. The RCT is normally assigned an artillery battalion and a firing ship; the BLT is assigned a firing ship. Fires requested by a BLT or RCT within its own zone of operations are normally executed promptly by artillery or naval gunfire without reference to adjacent or higher

units, provided there is no danger to, or interruption of the missions of, adjacent units. However, air missions are cleared with higher echelons since the trajectories of naval gunfire and artillery rounds fired by adjacent units could unnecessarily endanger friendly aircraft utilizing airspace over adjacent units while making target runs. Administratively, air missions are cleared with higher echelons because they are not executed by direct support units.

c. Artillery fires normally form the framework for the coordinated fire plan. The artillery officer includes in the fire plan all the close-in targets within the capabilities of the field artillery. The naval gunfire officer extends these fires to greater ranges using naval gunfire from direct support ships, and the air officer recommends missions on targets defiladed from or beyond the range of artillery and naval gunfire. When more fire is needed than can be supplied by direct support means, requests for additional artillery and naval gunfire are made to higher commanders.

d. During the attack, fires are usually placed on targets of opportunity by artillery and naval gunfire. Such targets are usually fleeting, and fires are delivered by whatever arm is most immediately available. Rapid interchange of information between support representatives, full use of all support means available to the unit, and prompt requests for necessary additional support from higher commanders are required throughout the attack.

e. Artillery and naval gunfire is also used for harassing and interdiction fires. Supporting aircraft rarely carry out these missions for an RCT.

f. Illuminating fire missions by infantry mortars, artillery, and naval gunfire are coordinated by the fire support coordinator. This prevents duplication and insures that the most effective means are used.

216. TARGET INFORMATION CENTER

The FSOC's of division and higher echelons may organize target information centers. These centers record information on suitable targets for attack by all supporting arms, and recommend the action to be taken on each target. Specific functions of these centers are to receive, record, and disseminate target information; plot targets on the target map; index targets; interpret aerial photos; recommend appropriate action on targets suitable for attack; make a damage assessment report; and prepare required records, reports, and overlays.

CHAPTER 8

AIR SUPPORT

Section I. INTRODUCTION

217. MISSIONS OF SUPPORTING AIR

In an amphibious operation, the missions of supporting air are to gain and maintain air superiority in the objective area, to interdict the battle area, and to provide close support to the ground forces. Air support is provided by—

a. General air operations conducted as part of an over-all offensive campaign and only indirectly related to the amphibious operation.

b. Covering air operations conducted outside the objective area but directly affecting the projected operation by providing protection for the amphibious forces while they are en route to and in the objective area.

c. Preliminary air operations conducted to obtain information, gain air superiority, isolate the objective area, reduce the hostile defenses, and lower the enemy's morale.

d. Supporting air operations directly related to the offensive activities of the attack force, and controlled by the attack force commander.

218. CAPABILITIES AND LIMITATIONS

Before air support is selected or requested, its capabilities and limitations must be understood.

a. Capabilities:

- (1) *Superior Observation.* Aircraft can maintain observation over large areas. This observation is relatively unrestricted in range and is not greatly affected by variations in terrain. Support aircraft are most effective in the reconnaissance of reserve slopes and deep valleys, and in the adjustment of supporting fires on targets in such areas.
- (2) *Ability to Attack Defiladed Targets.* The outstanding characteristic of aircraft as supporting weapons is their ability to strike targets that are masked from artillery and naval gunfire.
- (3) *Speed and Maneuverability.* These qualities enable aircraft to concentrate rapidly over the objective from dispersed bases,

permit rapid changes in direction for adjusting fire, and give protection from enemy fire.

- (4) *Range.* Support aircraft can operate from distant bases and can attack enemy positions located beyond the range of other supporting arms.
- (5) *Mobility and Flexibility.* Small flights of aircraft may be used against individual targets, and large groups of aircraft may be concentrated against targets of great extent or importance. The variety of armament in each aircraft makes it an effective weapon against practically every type of enemy installation.

b. Limitations:

- (1) *Weather.* Restricted visibility at air bases or in the objective area impose severe limitations on air support. Low ceilings prevent photographic reconnaissance. Accuracy is lowered by the dust and smoke common to the front line area. Effective attacks cannot be made directly into the sun; darkness also lessens the effectiveness of close support.
- (2) *Aircraft Endurance.* The fuel capacity of support aircraft limits the time they can spend over the objective.
- (3) *Ammunition Capacity.* The limited ammunition capacity of support aircraft generally permits no more than two or three rocket or bombing attacks by each airplane before returning to its base for rearming.
- (4) *Direction of Attack.* Aerial attacks are more accurate in deflection than in range. Consequently, attacks are made parallel to friendly front lines wherever possible. Large salients and reentrants in the front lines require detailed coordination with adjacent units to insure the safety of friendly troops during close support missions.
- (5) *Trajectories of Other Arms.* Flying through the trajectories of supporting fires is dangerous. This hazard often requires restrictions or suspension of such fires. The examination of each air mission to determine the need for such restrictions often delays the execution of the aerial attack.

219. TYPES OF AIR SUPPORT AVAILABLE

The initial weakness of the landing force in organic supporting weapons, together with the extreme vulnerability of the attack force in the early phases of the landing operation, require extensive reliance on air support for protection, information, and supporting fires. The types of support operations are—

a. Offensive air operations, including attacks to achieve and maintain air superiority, to destroy located targets, to interrupt communication, and to lower enemy morale. These attacks are made by

fighter sweeps on enemy installations to destroy aircraft on the ground and in the air; by bombing attacks to damage and destroy airdromes and other targets that may impede the amphibious attack; by reconnaissance operations to secure aerial photographs for use in the selection of landing beaches; and by direct attacks against enemy forces and installations in the immediate path of advance of friendly forces.

b. Security operations, including combat air patrols, antisubmarine patrol, search and patrol operations, and operations to repulse enemy air or sea attacks. These are normally performed by carrier-based aircraft.

c. Troop support operations, including deep air support, close air support, and miscellaneous operations.

- (1) *Deep air support* operations are those that take place in the objective area far enough from friendly ground forces to require no direct coordination between aircraft and front line units. A bomb line is normally established beyond which offensive air operations are unrestricted.
- (2) *Close air support* consists of air operations conducted near enough to friendly front lines to require the detailed integration of each air mission with fire and maneuver of the ground forces together with the fires of other supporting arms, and must be requested and approved by the ground commander concerned.
- (3) *Miscellaneous operations* may include the use of aircraft for evacuation of casualties, cover and deception operations, air-sea rescue, troop carrier operations of resupply and airborne reinforcement, and the spraying of insecticides.

Section II. ORGANIZATION

220. AIR FORCE ORGANIZATION FOR SUPPORT OF AMPHIBIOUS OPERATIONS

All Air Force units assigned to an attack force are under the direct control of the air officer on the staff of the joint force commander. Normally, Air Force units are assigned to the attack force only when the objective area is within effective range of the tactical fighter and bomber air bases. Because of this range limitation, their mission is to attack enemy installations and other targets within the objective area and to interdict the battle area. This leaves naval and marine air units free to perform combat air patrol and close support operations from carrier bases with the attack force.

221. ORGANIZATION OF NAVAL AIR UNITS IN AMPHIBIOUS OPERATIONS

Naval air units are under the direct control of the air officer of the attack force. As these units operate from carriers, they are readily available to provide combat air patrol, close support, and air defense operations until the consolidation phase is accomplished and airfields are established ashore.

222. ORGANIZATION FOR TACTICAL AIR CONTROL AND LIAISON

The air commander is responsible for the employment of the air component of the attack force (fig. 26). To discharge this responsibility and to permit the most effective application of air power, the following control agencies are at his disposal:

a. The *combat operations section* is responsible for detailed planning and the supervision of the air operations. The combat operations officer is in charge of this section and is directly responsible to the air commander for its operation. This section is also the air component of the joint operations center. The section is organized for continuous operation and includes specially trained intelligence officers, operations officers, and clerks.

b. The *tactical air control group* is a flexible organization composed of aircraft control and warning squadrons. The group furnishes the operational components of the tactical air control system, which consists of the tactical air control center (TACC), tactical air direction centers (TADC's), and tactical air control parties (TACP's). The group's mission is to provide the facilities and information required for aircraft control and air warning. The tactical air control group is organized to control and provide administration for this system.

c. The *tactical air control center (TACC)* is the means through which the air commander controls the tactical air operations in his zone of responsibility. This agency functions initially from the joint operations center afloat, using the facilities provided by the tactical air control group, which is also afloat. In the normal amphibious operation the TACP's go ashore initially with the BLT's, RCT's, and divisions; next, the TADC's land with their integral radar; and, last, the TACC is established ashore at the same time the joint operations center goes ashore. While afloat, the TACC is located in the joint operations center aboard the attack force headquarters ship (AGC) and uses the facilities provided by the tactical air control group. Ashore the TACC is located near the combat operations section of the joint operations center and operates directly under the air commander. Direct wire communication to the combat operations section of the joint operations center is essential. Communication is the primary factor in selecting the location of the TACC.

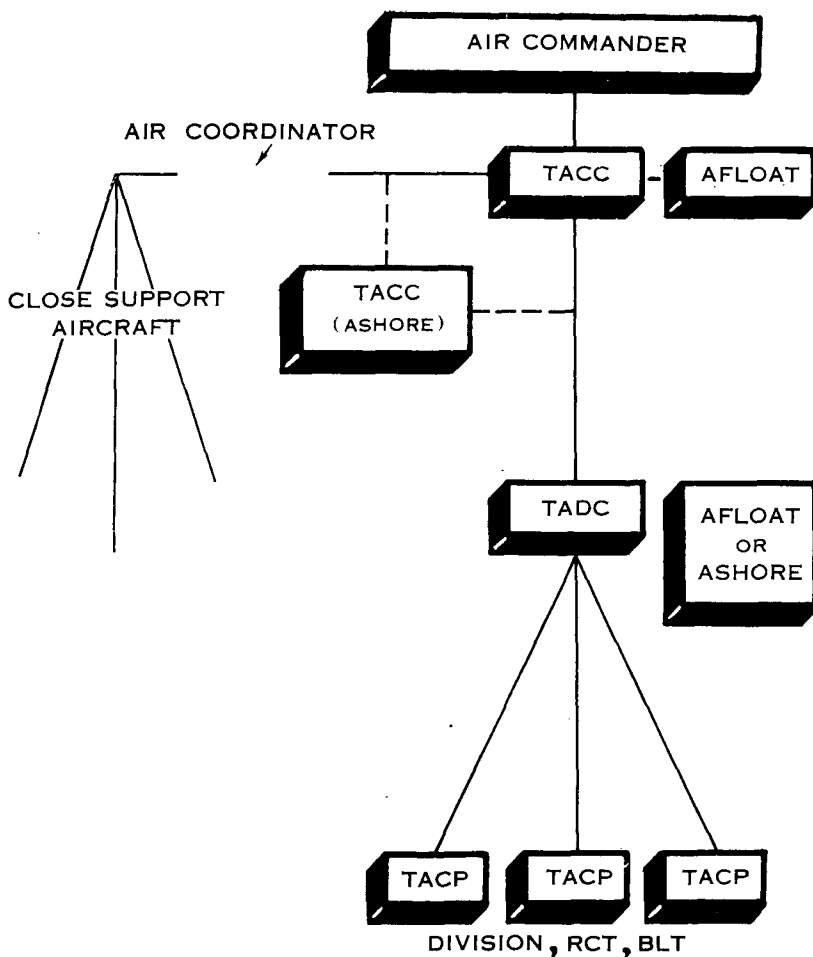


Figure 26. Air support control system.

d. The *tactical air direction center (TADC)* is organized and equipped similarly to the tactical air control center, as far as ship-based units are concerned. On land, the TADC has radar equipment for use in the control of friendly aircraft and particularly for use in the interception and tracking of enemy aircraft. (The TACC has no radar equipment and does not control intercept missions.) The TADC goes ashore when the area where it is to be sited is cleared of enemy forces, and is located where its radar can be most effectively used.

e. The *tactical air control party (TACP)* consists of a forward air controller (FAC) with enlisted assistants and communication equipment. A TACP is assigned to each division, RCT, and BLT. The primary mission of the tactical air control party is to observe ground

targets close to the front lines and to direct aircraft to them by radio. This aircraft control is accomplished by on-the-spot, close cooperation with the forward ground elements.

f. The air liaison officer is an experienced pilot trained in operational procedure who may work with a division or higher headquarters as a special liaison officer. He is an advisor to the ground commander on Air Force matters, and is a direct representative of the tactical air force commander.

Section III. AIR SUPPORT OPERATIONS

223. PRELANDING AIR OPERATIONS

(fig. 27)

a. Reconnaissance. When the objective for an amphibious attack is selected, reconnaissance aviation makes aerial photographs of the area. Low altitude oblique photographs are taken for the selection of landing beaches. Aerial photographs are examined with special emphasis on the nature, extent, and disposition of hostile defenses, enemy troop activities, and hydrographic and beach conditions.

b. Attack of Enemy Supporting Bases and Shipping. As a part of the initial effort to isolate the battle area, air operations are launched against bases that can directly support the enemy in the objective area. Attacks are concentrated on airfields and key shipping localities that directly serve the objective area. These attacks are coordinated with the over-all air effort that directs its power against enemy strength at its source.

c. Achievement of Air Superiority in the Objective Area. The successful conduct of the amphibious operation depends on achieving air superiority in the objective area. This is done by fighter sweeps over the objective and nearby supporting areas to intercept and destroy enemy aircraft in the air and on the ground; bombing attacks on air installations at the objective to make them inoperative; and bombing attacks on air installations at the enemy staging bases to prevent the replacement of aircraft at the objective.

d. Reduction of Hostile Ground Defenses. Concurrently with attacks aimed at the achievement of air superiority, preliminary operations are started to systematically destroy enemy ground defenses in the objective area. This air operation is conducted in coordination with preliminary naval gunfire bombardment. The evaluation of reconnaissance activities results in the location of installations, the destruction of which is considered a necessary preliminary to the amphibious assault. Each of these targets is assigned a priority according to its importance. Aircraft are employed not only as a part of the general bombardment effort, but especially in the attack of reserve slope positions that cannot be reached by naval gunfire. Results of successive attacks are evaluated and operations are con-

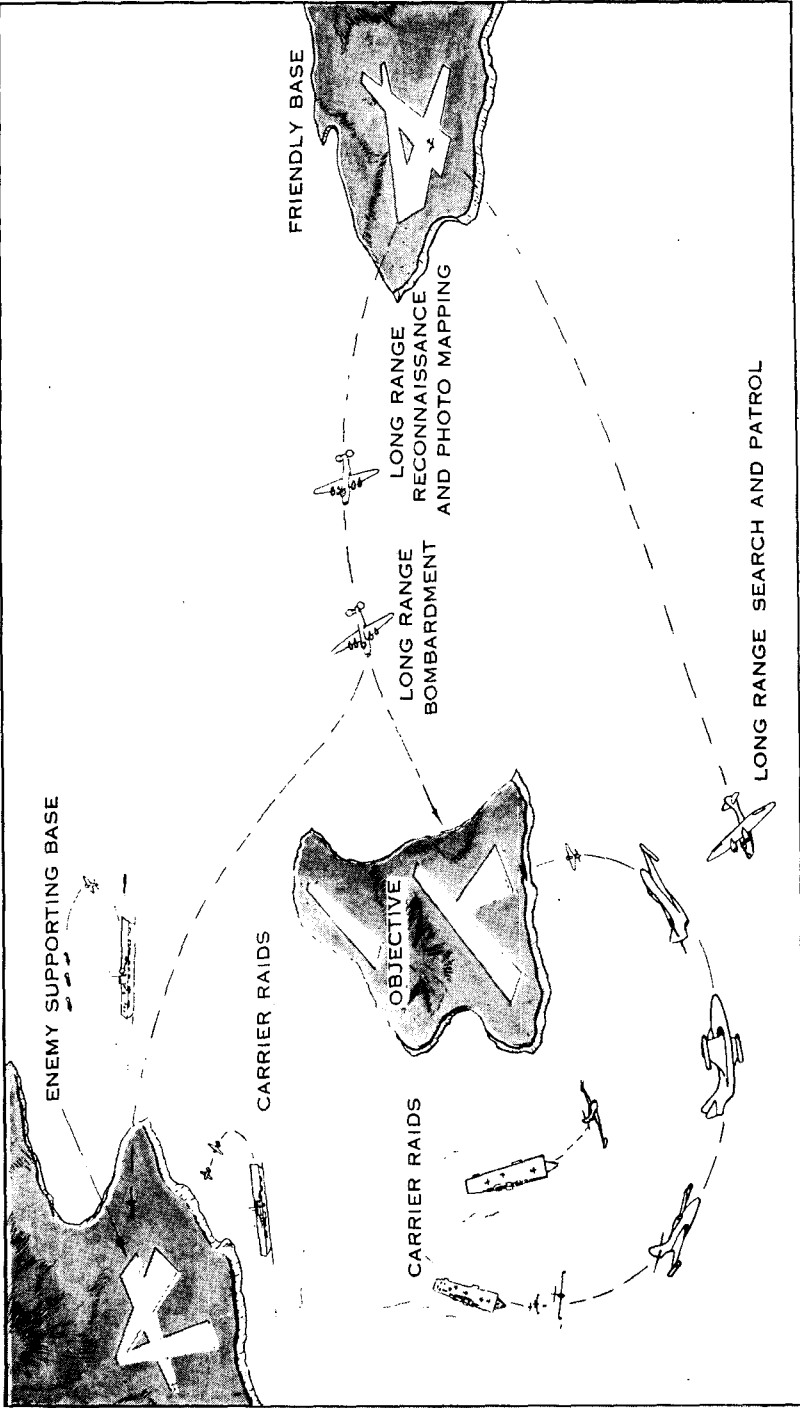


Figure 27. Pre-D-day supporting air operations.

tinued according to this evaluation to make sure that all located targets are destroyed.

e. Cover for Preliminary Ground Operations. Ground operations, such as diversions or raids, are provided adequate air protection and support.

f. Cover for Demonstrations. Demonstrations by naval units as a part of the landing attack are supported by air operations in proportion to the extent of the deceptive effort. All the elements of a prelanding air attack are included sufficiently to provide realism.

g. Support Preliminary Surface Operations by Carrier Aircraft. When the support group arrives in the objective area, carrier aircraft support preliminary surface operations by continuous combat air patrol over the support group and antisubmarine patrol over all surface approaches in the vicinity of the amphibious support group. Search and patrol operations are conducted to supplement and extend surface coverage by land-based aircraft and fighter sweeps are made against hostile air bases in the objective area until control of the air is obtained. Neutralization attacks against airdromes, aircraft installations, and other selected objectives are carried out according to an established priority of targets. While on station, carrier aircraft are prepared to support the operations of bombardment units, mine sweepers, underwater demolition teams, and beach reconnaissance units, and they also act as spotters for naval gunfire.

224. AIR OPERATIONS DURING LANDING PHASE

During the ship-to-shore movement, preplanned air strikes assist in achieving the maximum shock effect; they cover the periods in which fire support ships are maneuvering for position. During the critical period, when landing craft are making the final run to the beach, aircraft assist in neutralizing the beach and adjacent key terrain features by concentrated strafing, bombing, rocket, and incendiary attacks. This activity is maintained until the landing craft are so close to the shoreline that continuation would endanger the attacking troops. The attacks are then displaced inland by small increments to maintain the neutralization effect. On call, the supporting aircraft lay smoke.

225. CLOSE SUPPORT OF GROUND ELEMENTS

a. The decision to employ close air support rests with the commander of the troop unit concerned, and is based on the principle that, whenever practicable, air attacks near the front lines are controlled by the tactical air control party attached to the units involved. In determining the most effective form of supporting fire, a commander generally considers using the three principal supporting arms

in the following order: artillery, naval gunfire, and air. However, when the enemy defense is determined and well organized, there are occasions when aircraft are employed either alone or with the other supporting arms, without regard for the suitability of the weapons to the particular targets.

b. Each RCT and BLT tactical air control party lands in the same boat or boat wave with the commanding officer of the unit to which it is attached. Personnel of the TACP carry portable radio equipment ashore, while one man remains afloat with the vehicular radio to land on call. Immediately after landing, each forward air controller sets up his portable radio equipment and monitors the tactical air request net. Radio equipment used by BLT forward air controllers to report observations and direct air attacks is installed at the battalion observation post or at other front line localities. Immediately upon establishment ashore, each forward air controller acquaints himself with the artillery and naval gunfire situations and coordinates all of his activities with the liaison officers of those arms.

c. When the ground commander determines that close air attacks are required, he communicates the requirement to his forward air controller who secures the desired support. Higher commanders may cancel the requests of lower commanders. Commanders of other units, not in the same chain of command, may request the air support control agency to cancel a requested strike if its execution will interfere with the operations of their units. When no cancellation requests are transmitted, it is considered that all commanders consent to the requested strike.

d. Requests for close air support are not opposed by intervening commanders nor by the air support control agency merely because the target is near to the front line of the unit requesting the mission. However, the effect of each requested mission on adjacent units as well as on the over-all fire support plan is considered. Should the requested mission seem to be unjustifiably hazardous to adjacent troops, or to be an unwarranted interference with the existing fire support plan, the higher commander or control agency cancels the mission.

e. The net controller receives requests over the tactical air request net. Target information received is checked by the air-combat intelligence officer for closeness to front lines, bomb line, direction of attack, enemy anti-aircraft fires, and best route by air to the target. Naval gunfire and artillery schedules are checked by the air-combat intelligence officer to determine whether their fires will endanger aircraft executing the close air support mission. The determination of the degree of risk and the extent of restriction that should be imposed on other supporting arms is the responsibility of the air support control

agency. The approval and execution of restrictions on the firing plans are the responsibility of the landing force commander and are normally effected by his FSCC. If supporting fires of other arms are deemed hazardous to the execution of close air support missions, the controller or director of the air support control agency advises the landing force fire support coordination center, which puts one of several prearranged restrictive plans into effect. Otherwise, the air mission is cancelled.

f. If the request is approved, the tactical air direction net controller assigns a flight to the mission. The tactical air request net controller notifies the interested tactical air control party that a flight has been assigned, whether the forward air controller is to direct the strike, and the approximate time the strike will begin. The tactical air direction net controller calls the tactical air coordinator and briefs him on the mission while the tactical air control party monitors the briefing, and supplements it.

226. OBSERVATION AND FIRE CONTROL

The control of tactical and gunnery observation aircraft is through the air support control system. When airborne in a carrier-based plane, all such air observers are controlled by the attack force tactical air control center until reporting on station over the immediate objective. Thereafter, tactical air observers are controlled by the forward air controller of the parent unit (corps or division). Gunnery air observers (artillery) are controlled by the appropriate artillery fire direction center. Naval gunfire air spotters operate under the control of the landing force unit that they will support during the operation.

227. LOGISTICAL SUPPORT BY AIR

a. Landing force unit commanders submit requests for the delivery of supplies by aircraft when organic supply agencies are incapable of adequate delivery. Requests are transmitted through the normal chain of command to the commander of the highest echelon established ashore, and they are then submitted to the attack force commander. Emergency requests for supplies are transmitted over the tactical air request net direct to the air support control agency.

b. The following factors, relating to aircraft, are considered by lower unit commanders in requests submitted for air delivery:

- (1) *Time.* Particularly when conducted from escort carriers, air delivery is subject to delay between the submission of the request and the execution of the mission (between 12 and 24 hours). The delay may be materially reduced when air delivery operations are conducted from shore bases to the objective.

- (2) *Weather.* Air delivery missions may be delayed or cancelled because of inclement weather. Although drops can be made in reduced visibility by electronic control, accuracy is greatly reduced under such conditions.
- (3) *Enemy Action.* If drops are requested near the front lines, loss of planes and cargo to enemy ground and antiaircraft fire is anticipated because of the need of flying at low altitude and reduced speed on a straight course.
- (4) *Control.* After the approval of a requested mission by the attack force commander, a time-on-station is set for the supply flight, and the interested landing force unit is so advised. When the supply flight reports on station it enters the tactical air direction center net, and the unit forward air controller so advises the commander who is responsible for stopping supporting fires that may endanger the supply aircraft. The drop zone is marked with panels or smoke, and the run is conducted under the direction of the forward air controller.

228. USE OF LIGHT AIRCRAFT

a. Light liaison-type aircraft may be used for emergency air evacuation of casualties, for artillery fire spotting and control, and for aerial photographic missions.

b. The landing force air officer is responsible for planning the early availability in the objective area of liaison planes organic to division and corps artillery units. Liaison planes may be flown to the objective area, providing an advance base is within their operating radius, or they may be brought in on the escort carriers normally included within the attack force. Ferry carriers may be employed if the over-all plans provide for their availability early in the operation.

Section IV. PLANNING

229. RESPONSIBILITY

The joint action of all available forces, based on a plan jointly prepared by air, ground, and naval forces, is essential to success in combat. The joint amphibious task force commander is responsible for the over-all coordination of detailed planning. He may be an Army, Navy, Marine, or Air Force officer.

230. SELECTION OF TARGETS AND REQUESTS FOR AIR MISSIONS

a. Selection of Targets. In the selection of targets, the capabilities and limitations of each available source of fire power is carefully considered and targets are allocated to the weapons most capable of

producing the desired result. This is a function of the joint operations center. The final designation of targets for air attack is the responsibility of the air commander.

b. Requests for Air Missions. When a close air support mission (attack, reconnaissance, or supply) is desired by a ground commander, he submits a request to the forward air controller of the TACP. This request describes the mission and the location of the objective, prescribes the time limitations, and, if it is an attack mission, outlines the general character of the attack desired. This request is monitored by control agencies of intermediate headquarters, and, if no valid reason exists for its cancellation, they remain silent. Upon approval of the requested mission, the task is assigned to an appropriate aircraft unit, and the air coordinator is informed of the mission. The briefing of the air coordinator is supplemented by the tactical air control party that will observe and control the mission. Dummy runs are executed as practicable and, if considered satisfactory by the observing forward air controller, the mission is executed. The same general technique applies whether the mission involves the attack of enemy front-line positions, the conduct of air-ground supply, or the execution of closely integrated front-line reconnaissance.

231. RECONNAISSANCE AND OBSERVATION REQUIREMENTS

a. While a general photographic plan is put into effect by the attack force, the landing force commander submits requests for photographic coverage of the beaches, of important terrain localities, and of critical points in the communication net within the beachhead. Aerial photographs of objective areas are provided as early as possible in the planning stages, as these photographs supply most of the intelligence available to the planning staff.

b. Visual and photographic reconnaissance is carried out according to the over-all reconnaissance plan. When the advance force arrives in the objective area, intensive photographic reconnaissance of the landing area is started to provide current large scale photographs for the landing force.

c. Before division and corps liaison aircraft move ashore, plans are made to use close support aircraft for artillery spotting, and observation for ground forces.

d. Aircraft are designated for low altitude reconnaissance of landing beaches to get information on the surf conditions and the results of final underwater demolition efforts.

e. High-performance observation aircraft are placed over the landing area to acquaint landing force commanders with developments in the enemy situation ashore. Lower commanders (to include division) guard the observation radio channel during this period.

232. AIR TRANSPORT AND SUPPLY PLANS

a. The basic requirements for air delivery are established by the landing force logistics officer and are expressed in an air delivery annex to the administrative plan. This plan is translated into estimated aircraft requirements by the landing force air officer. This officer then sends a request to the attack force commander listing the estimated transport aircraft services desired, the estimated escort carrier aircraft requirements, information on personnel and cargo to be embarked in escort carriers, the earliest time after D-day that air delivery may be required, the recommended air-ground supply signal procedure (if not already in existence), and information on the availability for loading of air delivery personnel and material.

b. If the tactical plan involves the air movement of troops into combat, the landing force air officer translates the tactical plan into a general statement of aircraft requirements by type. Upon receipt of the estimate of requirements, the attack force commander requests higher authority to provide the necessary troop-carrier units.

Section V. COMMUNICATION

233. COMMUNICATION FOR AIR DEFENSE

For the adequate conduct of air defense, these radio nets are required.

a. The *fighter air defense net* is a very high-frequency (VHF) voice net used by air defense control agencies afloat or ashore to direct combat air patrols in the objective area. Normally, there are two or more frequencies assigned so that a number of defensive missions may be directed at the same time.

b. The *combat information net* is used by fighter air defense control agencies afloat or ashore, radar pickets, early air-warning shore radar units, and air defense control agencies for interforce exchange of air raid information, instructions, coordination of effort, and announcements of conditions of readiness.

234. COMMUNICATION FOR AIR WARNING

a. The *general warning net* is used for interforce and interarea warnings between commanders of task forces or task groups. Attack force vessels guard (continuously listen in on) this net en route to, or departing from, the objective area. The general warning net may also be used as a scene-of-action frequency for forces operating together with no prearranged frequency plan.

b. The *tactical alert net* is used for interforce warning of enemy aircraft, submarines, mines, or suicide boat activities. All ships, fighter

defense stations, air defense control agencies, air bases, radar pickets, and designated ground units guard this net when within a prescribed area of responsibility. Beginning with the BLT, each unit as it arrives ashore maintains watch on this net until the next higher headquarters is established ashore and has all of its communication agencies in operation. Local area air raid and antiaircraft control conditions are transmitted over the tactical alert net.

235. COMMUNICATION CHANNELS FOR CLOSE SUPPORT AIR ATTACKS

a. The *tactical air request net (TAR)* is a high-frequency voice net used to forward requests for close support air attacks from ground forces to tactical air control or direction centers. At least one such net is required. The net is guarded by tactical air control centers (afloat or ashore), division tactical air control parties, RCT tactical air control parties, and BLT tactical air control parties. The large number of stations in this net requires the enforcement of a rigid system of procedure and net discipline.

b. The *tactical air direction net (TAD) (VHF)* is a very-high-frequency voice net over which aircraft engaged in close support air attacks are directed. At least one such net is required. The net is guarded by tactical air control center (afloat or ashore), support aircraft on station, tactical air coordinator, and tactical air control parties (as directed by the tactical air controller or director).

c. The *tactical air direction net (TAD) (HF)* is a high-frequency net available for emergency use by units engaged in directing support aircraft in case the VHF net fails, and for the control of aircraft engaged in miscellaneous missions like the air delivery of supplies.

d. The *tactical air command net (TAC)* is a high-frequency and very-high-frequency voice net that provides communication between the major air commanders at the objective area. The net is guarded by tactical air control and direction centers, carrier group commanders, carrier task unit commanders, and commanders of air units ashore.

236. COMMUNICATION FOR TACTICAL AIR OBSERVATION

The *tactical air observation net (TAO)* is a high-frequency voice net used to request observation flights and to transmit information obtained by such flights to appropriate ground commanders. The net is guarded by tactical air control and direction centers, the observation aircraft, and tactical air control parties.

237. COMMUNICATION FOR ADJUSTMENT OF ARTILLERY AND NAVAL GUNFIRE

a. The *artillery-air-spot nets (AAS)* are high-frequency nets as-

signed to division and corps artillery. Voice communication is established from the spotting plane to the artillery fire direction center controlling the gunfire. The nets are guarded by the spotting planes and the artillery fire-direction center.

b. The *ship-air-spot nets (SAS)* are high-frequency voice nets assigned to each naval gunfire support ship carrying spotting aircraft. The nets are used for communication from the spotting plane to the firing ship. In addition, shore fire control spotting nets are used by spotting aircraft when ship and plane are operating with a troop unit ashore.

CHAPTER 9

ROLE OF SUPPORTING ARMS AND SERVICES

Section I. ENGINEER UNITS

238. MISSIONS

The primary mission of engineer units is to assist the forward movement of other troops. In an amphibious assault the RCT is supported by divisional, corps, and amphibious engineer units. Amphibious engineers are members of engineer amphibious support regiments, which are components of the amphibious support brigade. Elements of the amphibious support brigade are used to develop the beach support area and to provide initial logistic support.

a. Division Engineers. During and after the assault phase, the primary mission of the division engineers is to assist the forward movement of combat units. On arrival at the beach, division engineers may be required to assist in clearing lanes for assault infantry and armored units. With prior planning and special training, division engineers can assist naval units and engineer shore companies (elements of the amphibious support brigade) in removing underwater obstacles. When the beachhead is seized and the assault units have reorganized, division engineer units continue normal support for infantry units in their subsequent attack inland. The division engineer unit with each RCT is usually a company.

b. Amphibious Engineers. Shore party support for the RCT is furnished normally by the engineer amphibious support regiment which is the nucleus for the division shore party. When the RCT is operating independently and it is impractical for the division shore party to accompany it, an RCT shore party element consisting of a reinforced engineer shore company or battalion may be provided.

c. Corps Engineers. Corps engineer units may be employed to reinforce divisional or amphibious engineers. They will assist in removing obstacles, clearing the beach support area, and providing shore roads and installations to support the RCT. Subsequently, corps engineer units revert to their normal mission of engineer support. Other corps engineer units may be assigned one or more of the following missions:

- (1) Provide reinforcing units and equipment for division engineers supporting RCT's.

- (2) Act as shore parties for RCT's in the absence of the amphibious support brigade.
- (3) Precede the main assault and clear gaps through beach obstacles.

239. CONTROL, TRAINING, AND EMPLOYMENT

a. Division Engineers.

- (1) *Training Phase.* Division engineers assist in preparing the training area before the training phase for an amphibious operation begins. Division engineers are normally attached to the RCT during elementary ship-based training and remain attached until the assault is completed. When the division headquarters is established ashore, companies resume their normal support role. Initial training for division engineers includes individual training in the use of demolitions, and mine detection and removal.
- (2) *Landing Phase.* During this phase, division engineers may be used as demolition teams. They may also be used by squads or platoons in support of rifle companies. Where major obstacles exist, platoons operate as a unit under their leaders. This method is particularly suitable for destroying obstacles, breaching sea walls, and providing vehicular gaps through extensive mine fields. All breaching efforts should be part of an over-all plan.
- (3) *Operations Ashore.* After the landing, division engineers continue to assist the forward movement of front line units. Demolition charges and demolition teams are provided for infantry assault units if needed. Engineer equipment, supplies, and personnel are provided to assist in removing barbed wire, beaching mine fields and building routes through and beyond the beach support area. Other tasks include repair, marking, and maintenance of roads, and bridge construction and repair.

b. Amphibious Engineers.

- (1) Engineer amphibious units, when available, provide the nucleus for all shore parties.
- (2) If an RCT is to have its own shore party, that party is attached during the elementary ship-based training phase. The RCT commander controls the shore party through its commander until completion of the assault landing. At the appropriate time after landing, the division commander directs the shore party to revert to parent unit control.
- (3) See paragraphs 272-295 for details on shore parties.

c. Corps Engineers.

- (1) *Control.* When corps engineers reinforce the shore party or act as a shore party for an RCT on a separate beach, they are attached and controlled in the same manner as the amphibious engineers. In the exceptional case where corps engineers precede the main assault, they are controlled by higher headquarters.
- (2) *Training.* Corps engineer companies may be used to assist shore companies and division engineers in preparing the training area. Corps engineer units should receive ample training for their specific tasks. These tasks are determined well before embarkation. Corps engineer units require extensive training and rehearsals when they are to support amphibious units or act as shore parties. If corps engineers precede the main assault, prolonged and intensive training and reorganization, as well as coordination and rehearsals with assault RCT's are required.
- (3) *Employment.* During the landing, corps engineers normally are attached to amphibious (shore party) engineers. Their functions may include helping the Navy to remove underwater obstacles, breaching beach obstacles, and gapping mine fields. Thereafter they may be engaged to clear the beach support area progressively as needed, mark uncleared areas, improve sites for supply dumps, build roads, construct unloading causeways for craft, and select staging areas. Corps engineers are normally released by the amphibious support brigade by D plus 2. Corps engineer units employed as shore parties are released when adequate permanent logistical troops are available, normally between D plus 20 and D plus 30. On release from attachment to amphibious support brigade units, corps engineer units revert to corps engineer control. They are then used on normal corps engineer missions.

Section II. ARMORED UNITS

240. TANK UNITS

Organic RCT tank units may be kept under regimental control, or one or more platoons may be attached to BLT's. The position of tanks within the assault force depends on the mission, the terrain, the enemy defenses, the beach obstacles, and the availability of special flotation devices or landing craft. Terrain and obstacles permitting, tanks are landed early, particularly, if the enemy is known to have tanks in position or tanks prepared to take part in a counterattack. In

any case, tanks either closely follow, or are closely followed by, the infantry. Paths are cleared through obstacles before the tanks land. Obstacles may be retaining walls, specially constructed masonry and steel obstacles on the beach or in the shore waters, or either underwater or land mines. After landing, tanks are employed as in normal land operations. They may be given a secondary mission of engaging sea-borne targets, particularly during the period when the beachhead is shallow. Some specially equipped tank units, such as flame throwers, tank dozers, or rocket tanks, may be made available. See FM 17-32 and FM 17-33 for the principles of the employment of tanks with infantry.

241. ARMORED AMPHIBIOUS TANK UNITS

An amphibious tank company will usually be attached to each assault BLT. These tanks, known as LVT(A)'s, normally constitute the leading wave of assault BLT's, and may also furnish flank protection for the BLT's landing on the flank. Amphibious tanks place howitzer and machine-gun fire upon the beach area while moving toward the beach, and provide fire support ashore until the arrival and commitment of land tanks. Amphibious tanks may also fire as artillery until the artillery is ashore and in position. After the landing of conventional tanks and artillery, they are used in a beach defense role under the shore party commander.

242. AMPHIBIOUS TRACTOR UNITS

Amphibious tractor units are used to transport troops and supplies from the ship to the shore. The tractor presents a relatively low silhouette, affords protection against small-arms fire, and is equipped with machine guns. It can negotiate minor underwater obstacles and reefs. Once ashore, the tractor can proceed over the beach to discharge personnel or to unload supplies. When amphibious tractors are used to land assault troops an amphibious tractor company is attached to each assault BLT.

Section III. FIELD ARTILLERY

243. EMPLOYMENT

During the planning stage, the field artillery battalion commander and his staff work closely with the RCT commander and his staff. The following conditions are peculiar to the use of field artillery in an amphibious operation:

a. During the planning phase, ground reconnaissance for position areas is impractical. Therefore tentative artillery position areas

within the zone of action of the supported unit must be selected from maps and aerial photographs.

b. During the initial stages of the landing, naval gunfire and air support replace field artillery support. The artillery battalion commander, the RCT commander, the naval liaison officer, and the forward air controller at regimental headquarters plan fires to be executed before the expected landing of direct support artillery. When artillery can be landed on small islands just off the beaches before D-day, it may take part in the preparation fires.

c. Forward observers and liaison officers join their companies and battalions before embarkation. Boat spaces are provided for them and their equipment by the assault BLT's.

d. A reconnaissance party from the field artillery battalion arrives ashore before the firing batteries land. These parties are larger than those used in normal ground combat. They and their equipment are boated to minimize loss because of enemy action. The artillery commander determines how his party and its equipment will be divided, and insure that they are properly distributed for the ship-to-shore movement. The increased size of the reconnaissance party aids in the early employment of the firing batteries. On arrival ashore, the reconnaissance party—

- (1) Determines the suitability of the position areas.
- (2) Selects and marks suitable landing points and routes to position areas.
- (3) Makes sure that the position areas are free of the enemy.
- (4) Clears or marks mines, booby traps, and duds.
- (5) Clears fields of fire.
- (6) Installs communication.
- (7) Begins survey.
- (8) Installs the fire direction center.
- (9) Guides the artillery to position areas.

e. Artillery units may land at greatly reduced personnel strength, and with less transportation and ammunition than normally required for operation (fig. 28). Further, the characteristics of available landing ships and craft may dictate the use of substitute material, which in turn may restrict the initial volume of artillery fire rendered to the supported unit. Since such a situation may affect the RCT commander's scheme of maneuver, close coordinate planning must be effected with naval gunfire supporting units to offset this deficiency during the early stages of the operation.

f. Artillery units may be landed in accordance with a time schedule in the landing plan, or may be landed on call, but since initial position areas must be reconnoitered and cleared of small arms fire, it is normal for artillery units to land on call.

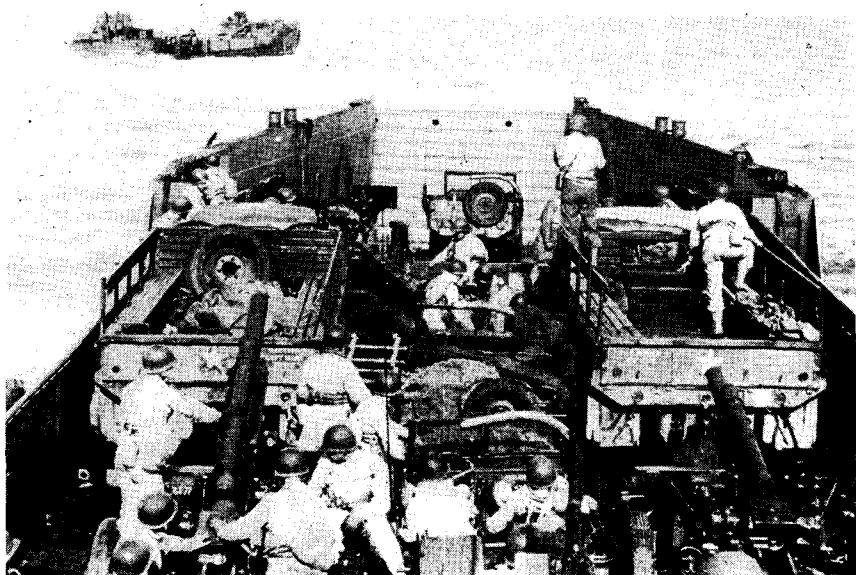


Figure 28. Field artillery aboard an LSU.

g. The light field artillery battalion in direct support of the reserve RCT is usually given either a general support mission, or the dual mission of general support and reinforcing the fires of one of the direct support battalions. This light battalion lands very shortly after the direct support artillery battalions land. This insures quick artillery reinforcement to the assault RCT's during the initial phase of the operation.

h. The medium artillery battalion of an infantry division will normally land as soon as the tactical situation permits. On landing, the battalion assumes its normal general support role.

244. CONTROL

During the planning of an amphibious operation, control is centralized in division artillery headquarters. Specific problems are worked out by the direct support battalion commander and the RCT commander. The division artillery commander also supervises specialized training for the operation. As soon as possible after coming ashore, the division artillery commander establishes centralized fire direction for all artillery battalions supporting the division. Normally, this is done as soon as adequate communication is established between division artillery and its battalions.

Section IV. ANTI-AIRCRAFT ARTILLERY

245. MISSIONS

a. Antiaircraft artillery may be employed against either ground or air targets. The commander of a force which includes antiaircraft artillery employs his antiaircraft artillery against the type of targets posing the greatest threat to his force. When employed against air targets, the mission of antiaircraft artillery is to provide local anti-aircraft protection for the ground forces and important ground installations. Missions of AAA units attached or assigned to the landing force may include—

- (1) Protecting assault landing waves, subsequent boat operations in the beach area, and assault forces making the inland advance against low altitude air attack.
 - (2) Protecting beach installations, airfields, and port facilities against any type of air attack.
- b.* When given a surface mission, AAA may be used to—
- (1) Assist in the antimechanized defense of the beach.
 - (2) Assist in protecting shore operations against seaborne attack by light naval craft.
 - (3) Operate the AAA guns as field artillery and the AAA automatic weapons as infantry weapons.

246. COMMAND

a. During the initial assault phase, command of AAA is normally decentralized. While afloat, control of AAA is a naval responsibility. AAA units designated to take part in the landing assault, either in the initial waves or in the subsequent early landings, may be attached to the RCT. As soon as practicable, division AAA automatic weapons units revert to the division artillery commander's control. This allows him to provide an integrated AAA defense as early as possible. The time and circumstances for such a shift in command are clearly stated in the plan.

b. Automatic weapons units, deck-loaded for the voyage, are controlled by the Navy during the trip. Upon reaching the objective area, the control of these units reverts to the landing force.

247. COORDINATION

a. During the initial landings and until the FSCC is established ashore, the supporting arms coordination center (SACC) coordinates antiaircraft fires with close-support air strikes.

b. During initial phases, AAA is controlled by unit commanders through established SOP's. These SOP's include instructions for

engaging aerial targets and also designate the recognition signals to be used.

c. AAA units designated to establish the static defense of the beach-head revert to higher AAA control as soon as possible. Coordination is accomplished by the antiaircraft operations center (AAOC) with the joint operations center.

Section V. CHEMICAL UNITS

248. ENEMY CAPABILITIES

a. Amphibious operations are vulnerable to hostile chemical and radiological attack, particularly during the landing and the initial build-up. At these times, personnel and supplies are massed and maneuver room is limited. These conditions favor either an enemy chemical or radiological attack, and steps are taken to minimize the effect of such attacks.

b. An enemy may attempt to restrict or to deny likely landing beaches and beach exits by maintaining heavy contaminations with persistent blister gases of the mustard type or by contamination with radiological agents. If continued contamination is not feasible, or if the landing achieves surprise, he may attempt to restrict the beach-head by using these agents at the time of the landing, seeking to cause casualties, hamper operations, and lower morale. Extensive chemical mine fields may be installed. These mine fields are detonated when a landing appears imminent. He may attack personnel concentrations with chemical agents sprayed from low flying aircraft. He also may use nonpersistent casualty chemical agents to inflict severe losses when personnel are confined to a relatively restricted area.

249. DEFENSIVE MEASURES

a. Directions and plans for chemical and radiological defense of an RCT are prepared by higher commanders and issued early to give time to get defensive equipment and to conduct refresher training and rehearsals. Commanders supervise the individual defensive training and train unit chemical defense specialists and radiological monitors. The chemical defense organization, augmented by radiological monitors, is responsible for radiological defense within the RCT. Commanders prepare standing operating procedures that establish the regimental chemical defense procedures. The SOP's govern the regiment's conduct during chemical or radiological attack and when crossing or working in contaminated areas. Rehearsals should include the assumption that the enemy will use chemical and radiological agents. This gives the units practical experience in operating in contaminated areas.

b. Active measures of defense include control of the air over the landing area to prevent enemy aircraft from attacking shipping or the beachhead with chemical or radiological weapons. Neutralization of the enemy's artillery and heavy mortars reduces his capability to fire chemicals on the beachhead. Early extension of the beachhead permits greater dispersion of friendly forces, and reduces the effect of enemy fires. Heavy concentrations of personnel and matériel in a limited beachhead area are avoided.

c. When chemically contaminated beaches are encountered, normal antigas equipment, if properly used, permits limited operations in or across the beach areas. Decontamination is time-consuming and requires much manpower and large quantities of decontaminating materials. It is not feasible to decontaminate the entire RCT zone. Some decontamination may be required in important small areas or lanes to insure uninterrupted command, communication, and evacuation. Effective area decontamination is possible if beaches known or suspected to be contaminated are attacked with fire bombs (such as napalm) to burn off the contaminating agent. In conducting such an operation, a 50 percent overlap is provided to insure adequacy and continuity. Portable flame throwers have limited use in clearing areas or lanes by fire; mechanized types having large fuel capacities are more useful.

d. Radioactivity cannot be neutralized or destroyed. Decontamination of radioactive areas depends on physical removal of the agents from the area or on covering the contaminated surfaces with a shielding material. Both methods could be used by units for crossing radiologically contaminated beaches. When these methods are not possible, crossings are made as rapidly as possible. As in the case of chemical contamination, individuals use personal antigas and radiological defense equipment for protection.

e. When hostile chemical or radiological action is anticipated, decontamination equipment and agents are included in the combat loads and are kept readily available. Higher commanders may provide chemical corps service troops, such as decontamination units, technical intelligence teams, maintenance service, and supply units for early commitment to meet chemical and radiological threats. These units normally operate under the landing force command. See FM 21-40 for details of chemical defense. See FM 60-5 for decontamination procedures used by the battalion landing teams. See TM 3-220 for other details of decontamination.

250. OFFENSIVE EMPLOYMENT OF CHEMICALS

Chemicals are effective agents for support of the landing operation.

a. Preparation bombing with chemicals is especially effective if

the beach defenses are well dug-in or are in natural caves. Both persistent and nonpersistent gases may be freely used. Persistent agents are shifted to inland targets early enough so that residual contamination and vapors do not affect the friendly landing units. However, prominent terrain features that can be by-passed and avoided by the attacking troops are suitable persistent gas targets. Large concentrations of nonpersistent casualty agents may be used on enemy defenses just before the landing. Air is the principal means for delivering chemicals during these phases.

b. Once ashore, chemical mortar units provide close chemical support together with tactical air support. Nonpersistent casualty agents are primarily used for these close-support missions. Organic RCT heavy mortars rarely fire chemicals because of the complicated ammunition supply involved, the limited target area that can be engaged by a single heavy mortar company, and the necessity of continued performance of the normal close-fire support mission with conventional weapons. The principal ground support unit is the chemical mortar battalion. Light and medium artillery units supporting the RCT are capable of firing shells filled with persistent or nonpersistent casualty gases. This type shell can be used for counterbattery fire, restricting or denying observation posts to the enemy, or contaminating vital areas and installations beyond the range of the chemical mortars.

251. CHEMICAL COMBAT UNITS

The two types of chemical combat units supporting landing operations are the mortar battalion and the smoke generator company.

a. Mortar troops may man mortar boats and support the ship-to-shore movement with high explosives or smoke. Normally, these mortar units land before the field artillery and provide supporting fire along with the organic heavy mortars. When decentralized, with companies in support of or attached to RCT's, the chemical mortar companies have the primary mission of supplementing the close supporting fires and establishing smoke screens. When landed and controlled as battalions, they fire high explosives, establish extensive smoke screens, and fire toxic chemical agents in support of the whole force, or of particular elements, as designated by the landing force commander.

b. Afloat, smoke generator troops, use floating smoke pots and boat-mounted mechanical generators, to cover ships lying off shore. Ashore, these units prepare to lay extensive smoke blankets and hazes over the landing area. These deny observation to hostile ground weapons (smoke hazes), and deny visible targets to hostile aircraft (smoke blankets). As the landing teams expand the beachhead, these units

are prepared to move forward with the infantry to screen exposed supply roads, troop concentrations and movements of friendly troops, and river crossing sites.

252. CHEMICAL SERVICE UNITS

a. Decontamination units may land with or closely behind assault troops to decontaminate critical areas or installations. Power-driven decontaminating apparatus is landed as soon as possible. Until it lands, maximum emergency hand decontamination is accomplished. The decontamination troops may be attached to the RCT or placed in direct support of it.

b. Chemical technical intelligence teams, and other specially trained teams for the detection of chemical agents, may be landed with the assault troops. During early phases of the operation these teams normally operate with RCT's in order to have quick access to hostile chemical matériel or to make early discovery of the hostile use of chemicals.

c. Chemical maintenance, depot, and processing units are landed as part of the build-up force that follows the assault echelons.

253. PURPOSE AND CAPABILITIES OF SMOKE

Amphibious operations provide frequent opportunities for extensive and varied use of screening smoke. Properly used, smoke reduces the vulnerability of the landing force to enemy fire during the movement and assembly of transports, the loading of landing craft, the ship-to-shore movement, and the initial occupation and organization of the beach. When combined with neutralizing supporting fires, smoke helps provide the assault BLT's with security during the critical phases of the operation. Area screens, used offshore in the form of smoke hazes or blankets, may cover the transport assembly area. When established ashore, these screens may cover the landing force during the organization and development of the beachhead. Other screens may be laid directly on hostile positions, or between them and the landing force; either frontally or to the flanks. These screens prevent effective aimed small-arms fire and neutralize enemy artillery, mortar, or rocket observation posts.

254. PLANNING SMOKE OPERATIONS

a. The decision to use smoke is made during the planning phase of the landing operation. Several smoke plans are prepared so that smoke will be effective in the landing area regardless of the wind conditions at the time of landing. Troop and equipment requirements are determined and provided for at this time.

b. Smoke screens supporting the landing are produced by various supporting units (primarily air, chemical troops, surface craft, and naval gunfire) rather than by weapons organic to the RCT. The various means are integrated into the several smoke plans adopted to meet varying wind and weather conditions. The navy commander controls smoke in the sea approaches, including that covering the ship-to-shore movement. The landing force commander controls smoke ashore.

c. The maximum use of smoke is made during training exercises and rehearsals. This accustoms troops to operations under smoke cover and develops positive means for control under such conditions.

255. TACTICAL EMPLOYMENT OF SMOKE

a. Aircraft bombs and smoke spray tanks, naval gunfire, mortar or rocket boats, or smoke boats equipped with floating smoke pots or mechanical smoke generators may be used to lay smoke across landing beaches while the landing force is still afloat.

- (1) When the wind is inshore screens may be laid frontally across the landing beaches, and smoke can also be used on both flanks to protect against flanking fire.
- (2) A flanking wind permits frontal screens but restricts flank screens to the downwind flank when the flank screens are close to the landing units.
- (3) An upwind flank screen is permissible when the screen is far enough upwind so that the smoke thins and disperses enough so as not to hamper the friendly operations.
- (4) An offshore wind restricts the use of frontal screens unless they are laid far enough inland to permit the dissipation of the smoke over the beach. Flank screens are more difficult to establish under this condition, and also may require establishment at a greater distance to the flanks because the normal downwind spread of the smoke cloud may hamper a portion of the friendly force.
- (5) Local conditions in the landing area may require cancellation of part or all of the close-in smoke plan.

b. When the distance over which the assault craft must move to the beaches is great enough, intermediate screens may be laid ahead of the initial waves by aircraft, mortar boats, or fast smoke boats. All screens laid in direct support of the landing operation require close control and careful attention to the timing, wind direction, and smoke density so that friendly operations receive maximum support with minimum interference.

c. Screens laid well inland by aircraft bombs, smoke spray tanks, or naval gunfire to block observation of the landing area, have little

adverse effect on the landing operation, and may be used with greater freedom.

d. Smoke usually alerts the enemy or draws fire. Therefore, screens are made so extensive that they do not form a small area target that the enemy may search with fire. Feint or dummy screens over landing areas not to be assaulted are used to draw attention and fire. This conceals the actual point of landing, and denies information as to the size of the landing force.

e. Once ashore, RCT's may use smoke in the direct support of ground operations. Initially, these smoke screens are small and local in character and are laid by light and medium mortars and hand and rifle grenades. As the heavy mortars come ashore, more extensive screens are possible. When the field artillery is ashore, more distant targets, such as observation posts, may be smoked.

f. In almost all cases smoke screens hamper friendly efforts to some degree. This hampering may be momentary and may affect only a small portion of the force. However, its existence must be recognized and action taken to minimize its effect. Such actions include—

- (1) Careful planning of the proposed screens.
- (2) Accurate last minute weather evaluation.
- (3) Careful control of the smoke by the highest tactical commander charged with the landing operation.
- (4) The extensive use of smoke during amphibious training and rehearsals.

CHAPTER 10

MEDICAL SERVICE

Section I. ORGANIZATION

256. ORGANIZATION OF THE MEDICAL COMPANY

The medical company of the infantry regiment is an organic part of the regiment and can give complete unit medical service to the regiment both in and out of combat. It consists of a company headquarters, a collecting platoon including litter bearer and ambulance sections, and three identical battalion medical platoons. Each battalion medical platoon is designed to support an infantry battalion in normal operations. See the current tables of organization and equipment and FM 7-30 for details of organization and equipment.

257. REINFORCEMENTS TO THE MEDICAL COMPANY

a. The medical company's organization parallels the regiment's organization. Altering the company's basic organization during amphibious operations is impracticable, but shifting the bulk of regimental medical support to the battalion medical platoons is usually necessary. This reinforcement is similar to the additional tactical support supplied each battalion under such circumstances.

b. As casualties in the initial phases of amphibious operations are usually evacuated without the assistance of vehicles, the litter bearer sections of the battalion medical platoons are reinforced. The litter bearer section of the collecting platoon is used for this reinforcement. But since this section also evacuates from the battalion aid stations to the beach evacuation stations, or to the regimental collecting station, additional litter bearers from outside the division are usually required. These additional reinforcements are attached to the regimental medical company and operate under the control of the regimental surgeon. When operating with a battalion medical platoon, they are attached to it and are controlled by the battalion surgeon.

c. In forming an RCT, the medical detachments of attached elements are left intact, and they supply the medical support for their parent units. These units normally evacuate their casualties through

regimental channels similar to and with the same phasing as called for in the regimental plan. As regimental facilities are available to them, it is usually unnecessary to provide additional reinforcements for the medical detachments of units attached to the RCT.

d. Separate companies, or smaller units without medical detachments, are accompanied by the normal strength of aid men and are rarely reinforced from the medical company. Casualties from such units are first cared for by their own aid men, and are then evacuated by medical personnel of the BLT with which the units are operating.

Section II. RCT MEDICAL PLAN

258. TACTICAL CONSIDERATIONS

a. The RCT surgeon is responsible for the preparation of the regimental medical plan, including the general scheme of evacuation for the RCT. If the operation is to take place in a location where special disease dangers exist or where sanitation is difficult, special protective measures are included in the RCT medical plan. Early plans must be made regarding special protective measures. All possible precautions, such as vaccinations, should be taken in the early stages of training.

b. The tactical plan and the mission govern the pattern of the RCT evacuation plan. The RCT surgeon considers the missions assigned to each battalion and the probable evacuation requirements resulting from those missions. He considers his means of support, including reinforcements available to the medical company. He considers the boat space available for transporting support to the BLT's as early as practicable. He also considers what reinforcing personnel should be placed with the battalion medical platoons. Finally, he considers the embarkation plans that will place the remaining personnel in the proper position for the boating plan.

c. The RCT surgeon makes detailed plans for the movement of all medical personnel and equipment under his immediate control. He plans and supervises their detailed training, their briefing, and their assignments from the time training begins until well after the assault phase. Often medical personnel are trained and briefed for an operation and then operate independently from the time they enter the marshalling area until the whole company is reassembled after the assault phase of the operation. Vehicle drivers, litter squad leaders, and separate company aid men are taught to remember rendezvous points and other instructions for long periods.

d. The RCT surgeon calculates his own possible losses and distributes personnel by ship and by boat team so that the loss of any group, with casualties as high as 50 percent in any functional section, does not disrupt the evacuation plan.

e. The initial BLT aid station locations are known and the initial collecting station site is chosen relative to them. This site is clearly identifiable on the ground and is designated in the RCT order.

f. The RCT surgeon makes sure that terrain studies are complete and that plans are understood thoroughly by all members of the regimental litter bearer and ambulance sections. An axis of evacuation is defined and explained. Some litter squads are landed ahead of the collecting station and initiate the evacuation system.

259. THE BATTALION MEDICAL PLATOONS

Detailed plans for the embarkation, boating, and employment of the battalion medical platoons are the responsibility of the surgeon in command of each platoon. These plans are closely coordinated with the BLT attack plan and are approved by the commander of the BLT the platoon is attached to for the operation. The BLT surgeon keeps the RCT surgeon informed of his requirements, the initial aid station sites, the planned axis of evacuation, and all such matters. In turn, the RCT surgeon attaches reinforcements to the BLT, assigns supporting elements, and arranges for liaison between the battalion medical platoon and the RCT collecting elements when they come ashore (FM 60-5).

260. COLLECTING PLATOON

a. The *collecting station section* of the collecting platoon is split into two parts for training and operations. Each part prepares to operate as a separate collecting station. The section is equipped initially with only the equipment and supplies that can be hand-carried by either part to open the initial collecting station at the preselected site near the beach. Additional equipment and supplies are loaded on vehicles. Each ambulance carries an assortment of supplies that is dumped at the collecting station site before the ambulance goes forward. One vehicle loaded with high priority equipment usually accompanies the ambulance. Heavy, less essential equipment, such as tentage, is usually loaded on later vehicles. The collecting station section may also pick up and consolidate the supply bundles dropped by the medical platoons. Collecting stations also supply the aid stations if the latter lose their reserve supplies, or if there is a large number of unexpected casualties.

b. The *litter bearer section* is also subdivided into several smaller sections. Attachments for the battalion medical platoons should contain as many of the experienced and dependable men from the litter bearer section as possible. Recently acquired reinforcements should not be assigned to the forward elements. It is essential to retain enough experienced men in the litter bearer section of the collecting

platoon to form a substantial nucleus for building the reinforced litter bearer section for the operation. It is also desirable to receive the reinforcements as early as possible, so that squad assignments may be made and training begun with the groups that operate during the assault phase of the operation.

c. The *ambulance section* requires no special consideration except that vessel spaces may limit the number of ambulances available. Ambulances are loaded with other vehicles of the same priority and drivers and orderlies normally accompany their vehicles. This provides a system of getting ambulances ashore, and also distributes trained medical personnel among several ships where they may be needed during the voyage.

261. COMPANY HEADQUARTERS AND FOLLOW-UP

a. The company headquarters is divided into three groups. Two of these groups are as nearly identical as possible; one represents a company headquarters ashore and the other a headquarters that can coordinate operations if casualties or other mishaps make the first group inoperative. The third group of administrative personnel remains in the marshalling area to accompany the RCT rear echelon. Filler personnel are assigned duties and accompany their assigned sections.

b. With the rear echelon are one of the two clerks, the vehicles and drivers not needed initially, and the minimum medical personnel required to look after the needs of the regimental troops in the rear echelon.

c. The motor maintenance section usually lands one vehicle and essential equipment soon after vehicular evacuation is established ashore. The other vehicles and the balance of equipment remain with the rear echelon.

d. As hot food and drink are essential in the prevention and treatment of shock and are important in maintaining the physical strength of casualties to promote early healing, the medical company normally loads a basic kitchen which is given a high landing priority. The kitchen is set up ashore near the collecting station.

e. The supply section of the medical company headquarters is responsible for the procurement of medical supplies for the company. This includes the supplies required by the battalion medical platoons even when attached to BLT's for the operation and during training. The supply section is also responsible for procuring items required for waterproofing medical supplies and equipment. It draws supplies for both the company aid men and the medical detachments of units attached to the RCT.

f. The supply officer (who is also the mess and motor officer) usually

lands with the first increment of the company headquarters. The supply sergeant lands with the rear echelon. If shipping limitations do not permit a supply vehicle containing reserve supplies to be brought ashore before it is anticipated that replacement supplies will be needed, plans are made to bring these supplies ashore in the following manner. Other troops coming ashore in early waves hand-carry small bundles of supplies, which are dropped on the beach. Another method is to place bundles on vehicles other than medical which come ashore early. These bundles are gathered up and pooled by litter bearers and other medical company personnel coming ashore in later waves. The bundles are small, clearly identified, and contain a representative amount of all essential items.

262. LIAISON WITH DIVISION CLEARING ELEMENTS

a. The divisional medical support keeps a liaison agent with the collecting station or with the company headquarters to bring ambulances to the collecting station as soon as it is established. This agent lands with the medical company and accompanies it on shore, returning to the beach after the collecting station is established and when the division ambulances are due to land. If the collecting station displaces forward while he is absent, a man from the collecting platoon remains at the old site to guide the liaison agent and the ambulances to the new site.

b. Division ambulances may be landed to evacuate casualties from the collecting station to the beach evacuation stations before the division clearing station is established. It is the duty of the liaison agent to know the phases of evacuation by the division units and to keep the RCT surgeon informed. The destination of casualties evacuated from the collecting station by division does not concern the RCT evacuation system directly, but the presence of a division clearing station on the beach is of importance in medical resupply. The ability of the clearing station to move inland affects the speed of evacuation and may influence the ability of a collecting station to move forward.

c. One platoon of ambulances from the ambulance company of the division medical battalion may be in support of each RCT. Unless these ambulances are used for evacuation in the area ahead of the collecting station, there is little advantage in attaching them to the RCT.

d. Neither the ambulance company nor the clearing company is organized to provide litter bearers for the regimental medical companies. They are usually provided by attaching to the division separate ambulance companies or collecting companies from army troops. When so attached, these units are controlled by the division surgeon, who allots the support to the RCT's. These supporting per-

sonnel are usually attached to the RCT's for the operation, but the headquarters of each attached company remains with the division medical battalion. The liaison agent from the division medical battalion assists the regimental surgeon in any administrative details concerning the attached personnel and their parent headquarters, and he guides them back when they revert to division control.

Section III. EMBARKATION AND VOYAGE PHASE

263. MEDICAL OPERATIONS DURING EMBARKATION

a. The medical company of the infantry regiment continues to give normal medical support to the regiment during all phases of training and preparation for the operation. Supplies that are drawn and packaged for the operation are segregated and not used before embarkation. Medical supplies needed during training and preparation are separately drawn by dispensaries and aid stations. Upon departure for embarkation, these supplies are usually closed out and left with the RCT rear echelon. However, if the unit provides its own medical support in the embarkation area, these supplies are kept and used there before being left with the rear echelon. After vehicles of the amphibious medical support are waterproofed and while they are being loaded, the regimental surgeon seeks other ambulance service for evacuation of the sick and injured from the embarkation area. Usually the area surgeon has ambulance and limited dispensary service available.

b. All supplies are rechecked in the embarkation area and their distribution verified. Any final supplies are issued. Equipment is checked for breakage and any broken apparatus is replaced. Final briefing is made, instructions reviewed, and personnel landing separately join their embarkation groups. Any maps essential to vehicle drivers or other personnel are distributed, or arrangements are made for their distribution aboard ship.

c. Battalion medical platoons (reinforced) close out aid stations and go aboard ship with their respective BLT's. The collecting platoon's litter bearer section and ambulance section load with the embarkation teams to which they are attached. To cover last-minute embarkation and loading accidents and to care for administrative details during embarkation, the medical company headquarters and one collecting station group remain operative until the last possible moment.

d. When adequate medical service is supplied by the port, no troops from the medical company are left in the embarkation area to care for the RCT rear echelon. When this echelon requires medical care for any period, an effort is made to leave personnel for its support

who can operate in a dual capacity; for example, vehicle drivers qualified as aid men.

e. In the loading of special medical and sanitary supplies, the embarkation officer coordinates with the regimental surgeon. These supplies consist of items like atabrine or chloroquin, water purification tablets, motion sickness preventives, and insect repellent for distribution to the troops aboard ship. The location and purpose of these supplies aboard ship is made known to troop commanders and instructions are given for their distribution and use.

264. MEDICAL OPERATIONS DURING THE VOYAGE

Medical care of troops aboard ship is a naval responsibility. Troop medical personnel assist naval medical personnel when so requested, but normally do not expend any of their own supplies for this purpose. Admission to the ship's sick bay, treatment, and return to duty is controlled by the naval surgeon. Personnel injured from accidents or wounds on debarking remain with the sick aboard ship and are evacuated by the Navy.

Section IV. LANDING PHASE

265. PHASING OF MEDICAL SUPPORT

a. In general, medical support accompanies the troop units it supports, landing with and immediately after them. The company aid men land with the platoons to which they are attached, battalion medical platoons land with their respective BLT's, and the balance of the medical company lands during the RCT phase. Detailed planning for the ship-to-shore movement includes the echeloning of medical personnel and equipment to best support the RCT evacuation plan. The battalion medical platoons, with attachments, are included in the detailed BLT plans. The remaining elements of the medical company are included in the RCT plan. It is desirable for some of the collecting platoon litter bearers (in addition to those directly attached) to follow closely behind the battalion aid station sections. These litter bearers operate independently, assisting the battalion litter bearers until the aid station moves inland; then they support it by evacuating casualties to the beach. They maintain contact with the battalion aid station and meet the collecting platoon when it is established, at which time they revert to collecting platoon control and evacuate casualties from the battalion aid stations to the collecting station.

b. Most of the organic and attached litter bearers of the collecting platoon are ashore and collecting casualties by the time the collecting station section lands and sets up. The collecting station section is

usually split into two parts, each aboard a separate ship during the movement to the objective.

- (1) Each part of the collecting station section is organized and supplied to operate a collecting station with hand-carried equipment. Additional equipment is loaded on one of the medical company vehicles and scheduled to arrive with others with the same unloading priority. Additional packaged supplies are loaded on each of the ambulances of the medical company. The collecting station is informed concerning the nature and amount of supplies and equipment that will be brought ashore on division ambulances. This dispersion of equipment and personnel, with emphasis on completeness of supply packages, permits flexible employment of the medical facilities.
- (2) It is expected that both parts of the collecting station section will arrive at the same time. They are preceded by most of the litter bearer section and are joined almost immediately by the last component of litter bearers.
- (3) Ambulances should begin to arrive almost as soon as the collecting station begins to function. This is coordinated with division support so that the division ambulances are phased to arrive by the time the troops have advanced far enough inland to require a forward displacement of the collecting station. Other medical company vehicles—including the vehicles carrying the collecting station equipment and supplies, the kitchen truck, and the company headquarters messenger vehicle—normally arrive ashore before the forward displacement.

266. SUPPORT TO ASSAULT BLT's

a. It is necessary to plan practically identical medical support for all three BLT's of the RCT (fig. 29). The medical support of a BLT in reserve remains with the BLT regardless of how late the BLT may be committed. It is impracticable to transfer attachments to the battalion medical platoon while it is still afloat, and unwise to send hastily briefed reinforcements out to search for a medical platoon ashore.

b. Support of the assault companies begins with the company aid men with each combat platoon. The aid men accompany their platoon ashore, treat casualties where they occur, and move forward with their platoons. They dress wounds, apply emergency splints, arrest hemorrhages, and initiate measures for the prevention of shock. They do not normally treat the casualties that occur on the landing craft except for emergency first aid that can be given before landing.

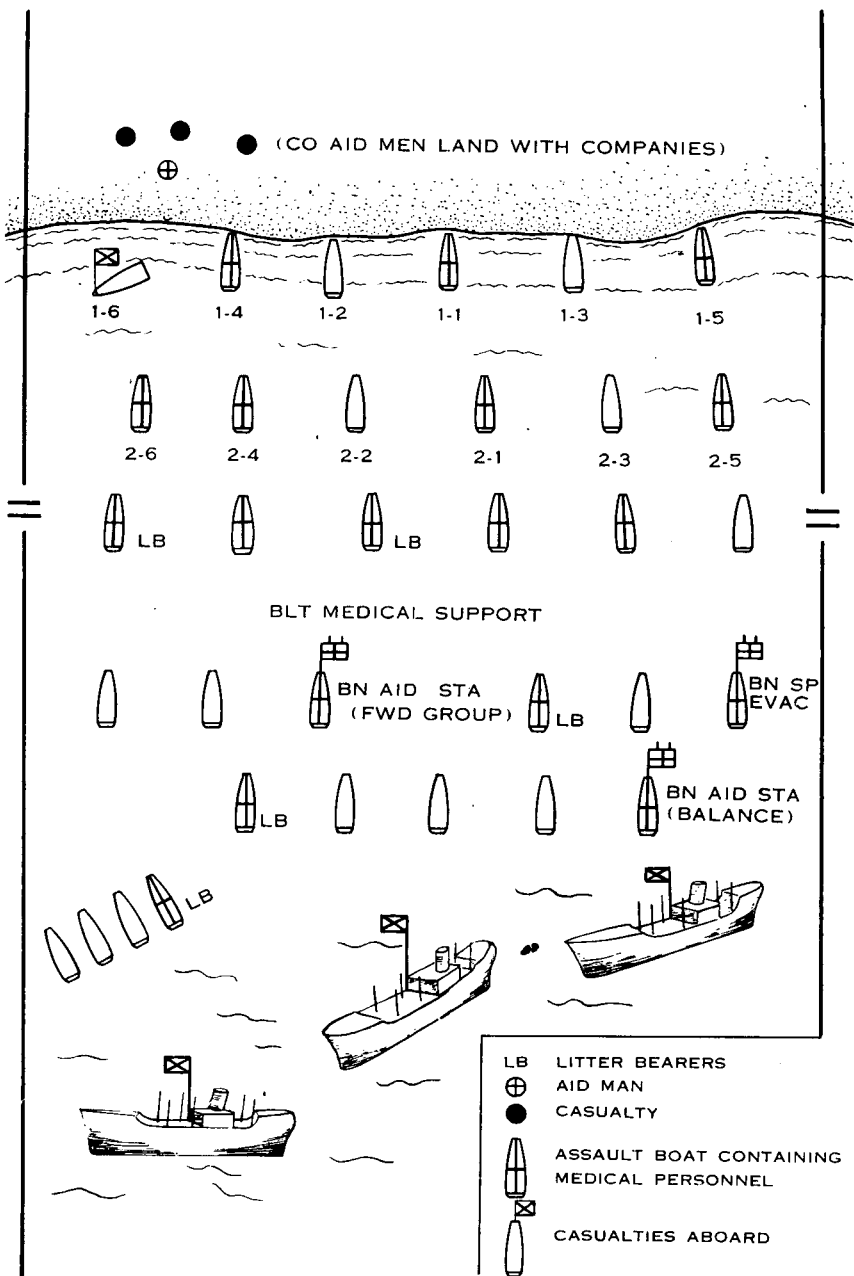


Figure 29. Medical support in the initial assault.

These casualties are treated by naval personnel, and are returned to ships without being unloaded.

c. The company aid men are followed closely by litter bearers of the battalion medical platoon. These initial litter squads, preceding the battalion aid station (fig. 30), begin collecting casualties as soon as the beach is clear of aimed small-arms fire. Casualties are evacuated to the beach until the battalion aid station is ashore. Litter bearers from the regimental collecting platoon follow the aid station in close support, often being boated with other BLT personnel. They take over the evacuation of casualties from the aid station to the beach until the collecting station arrives (fig. 31). At this time the collecting effort is consolidated into one collecting station, and evacuation proceeds from it to the beach evacuation station (fig. 32).

d. Casualty evacuation control is important in effecting medical service afloat. During the landing, small craft carrying casualties from the beach report to a casualty evacuation control ship which is between the beach and casualty receiving ships. The control ship distributes the casualties equitably by number and type, to the casualty receiving ships.

e. After the battalion aid station is consolidated and has displaced forward, its operation follows the pattern for normal ground combat. Litter bearers from the regimental collecting platoon continue evacuation to the beach evacuation station until the regimental collecting station is established. When the $\frac{1}{4}$ -ton ambulances are landed, the entire evacuation system begins to resemble that of a ground assault. As soon as possible, division medical battalion units and army hospital units land. When the medical battalion clearing station opens, evacuation of casualties from the regimental collecting station becomes the responsibility of the medical battalion (figs. 33 and 34).

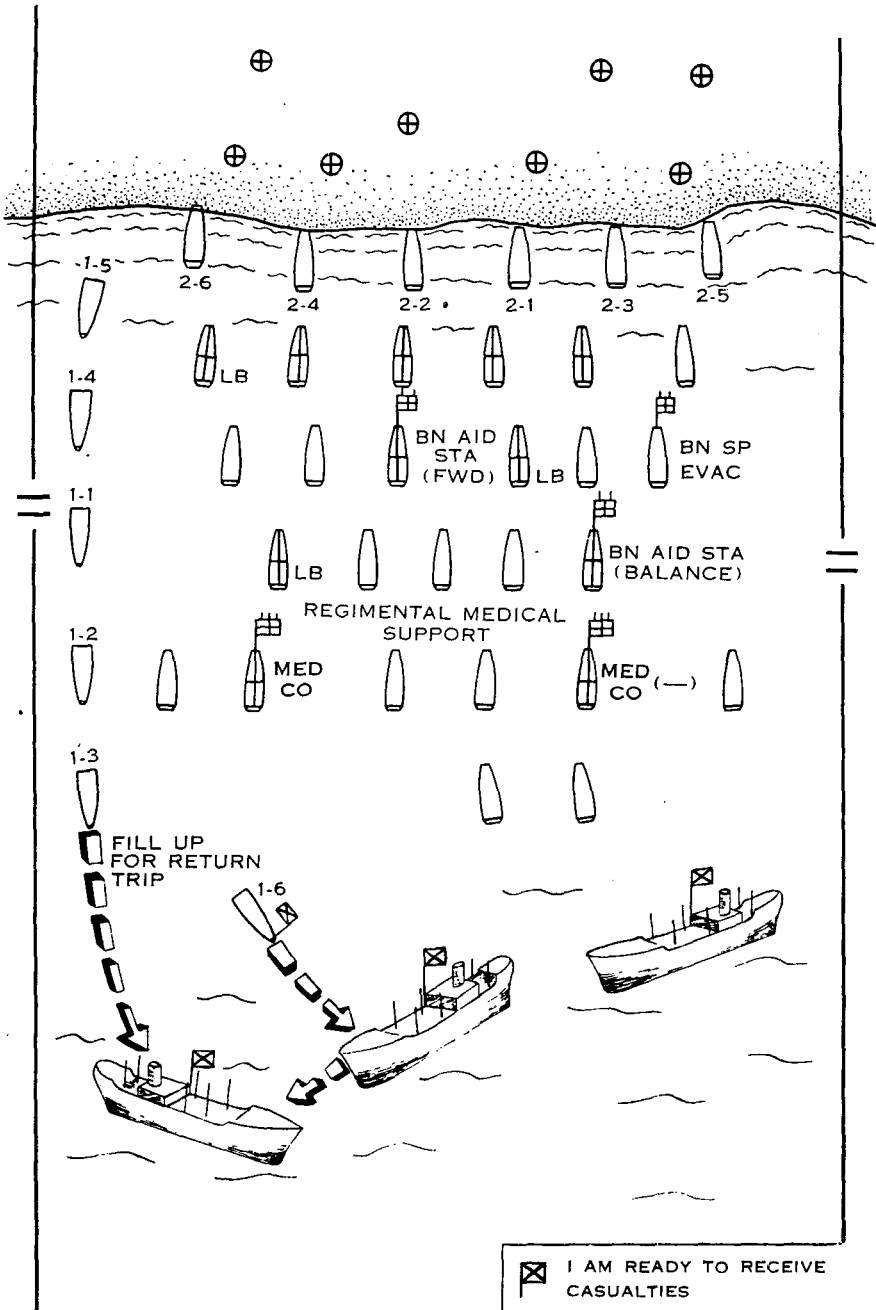


Figure 30. Medical support in the initial assault (continued). The BLT moves inland.

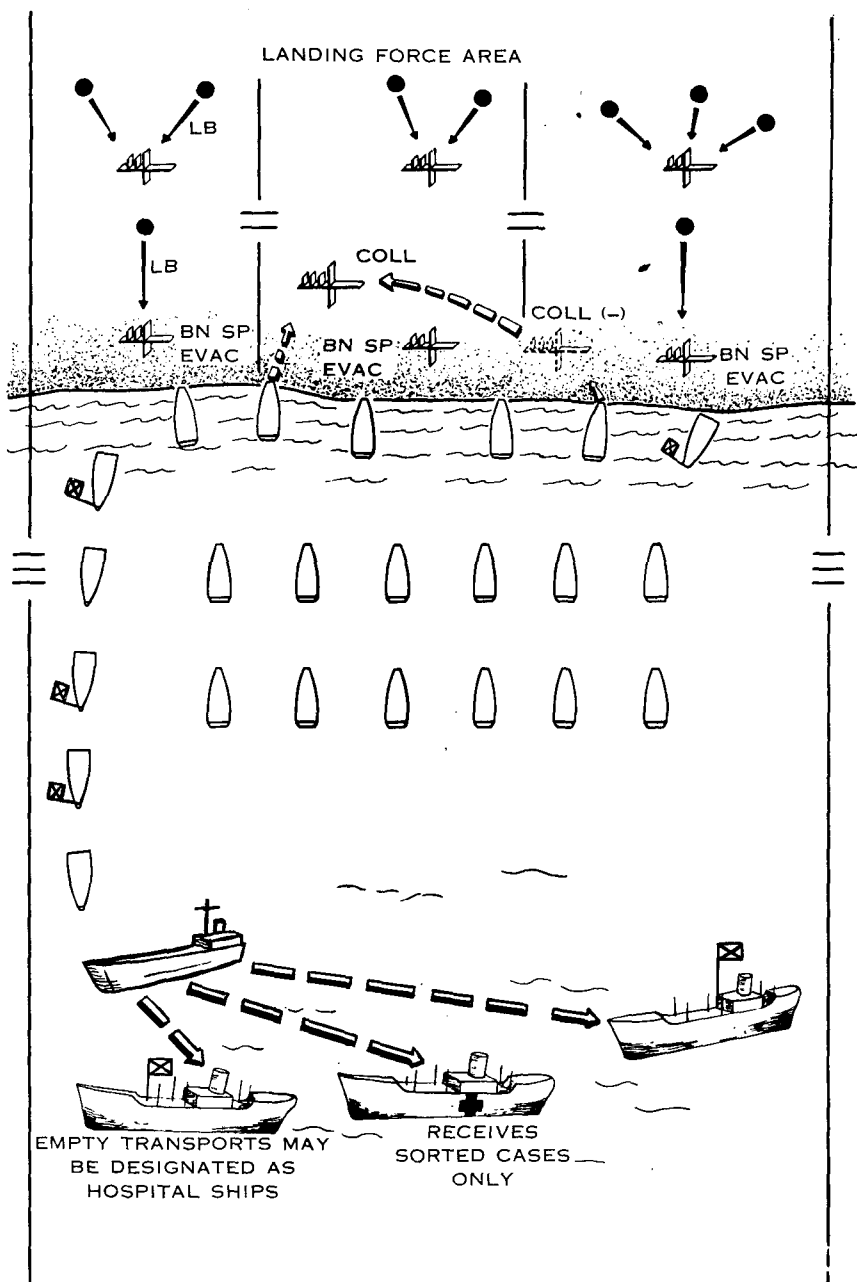


Figure 31. Medical support in the regimental follow-up. Collecting elements arrive and join to establish a regimental collecting station.

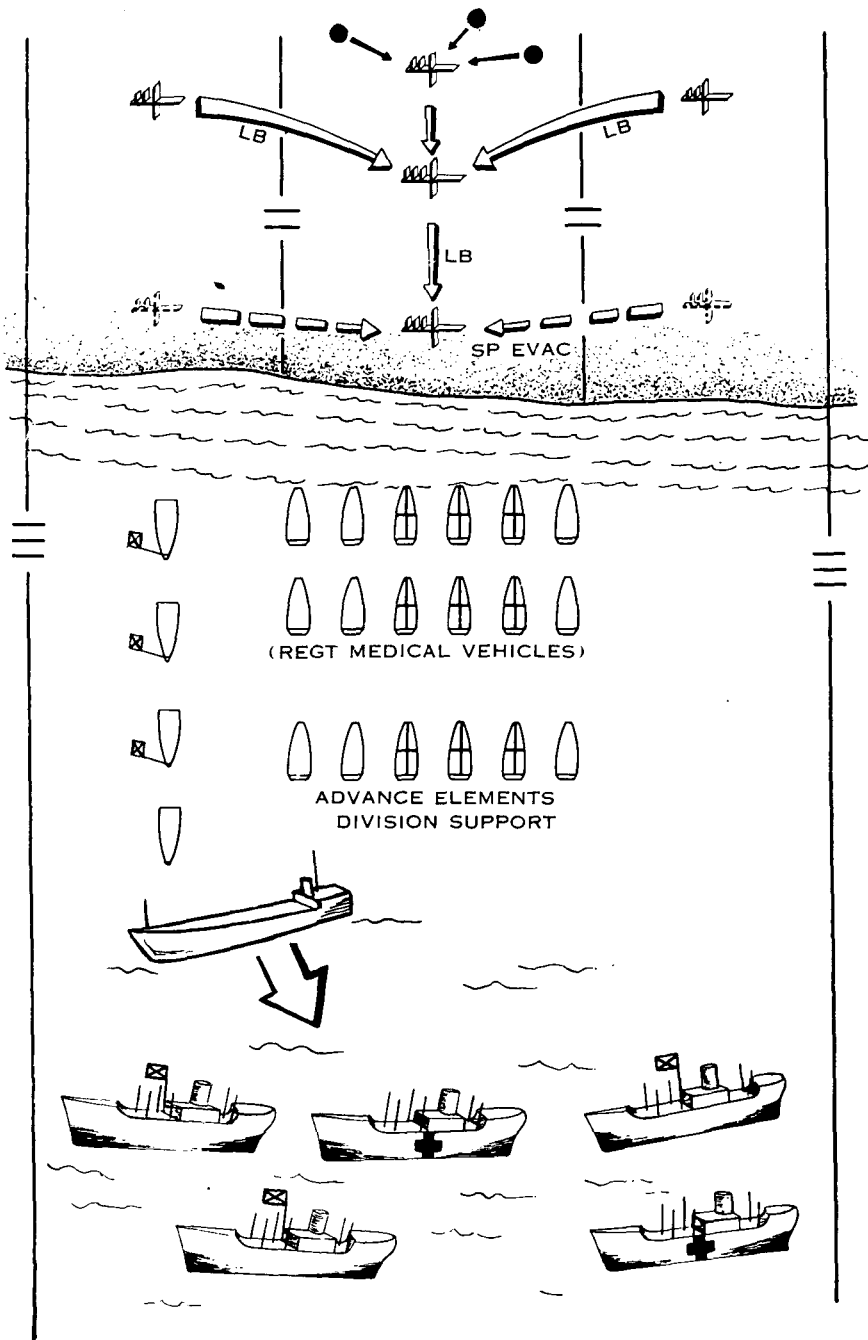


Figure 32. Medical support in the regimental follow-up (continued). Battalion shore party evacuation stations clear their casualties and consolidate to form a regimental shore party evacuation station.

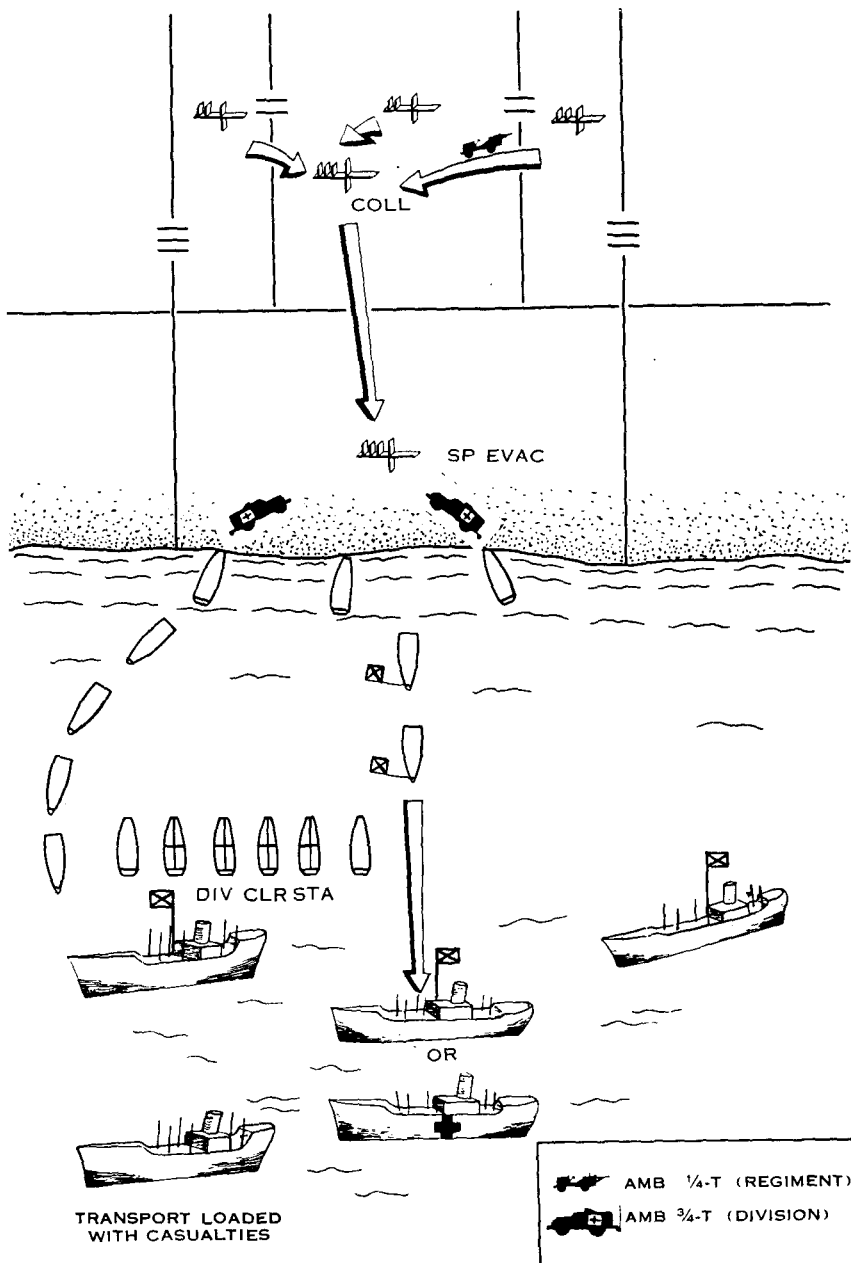


Figure 33. Division elements of evacuation chain move ashore.

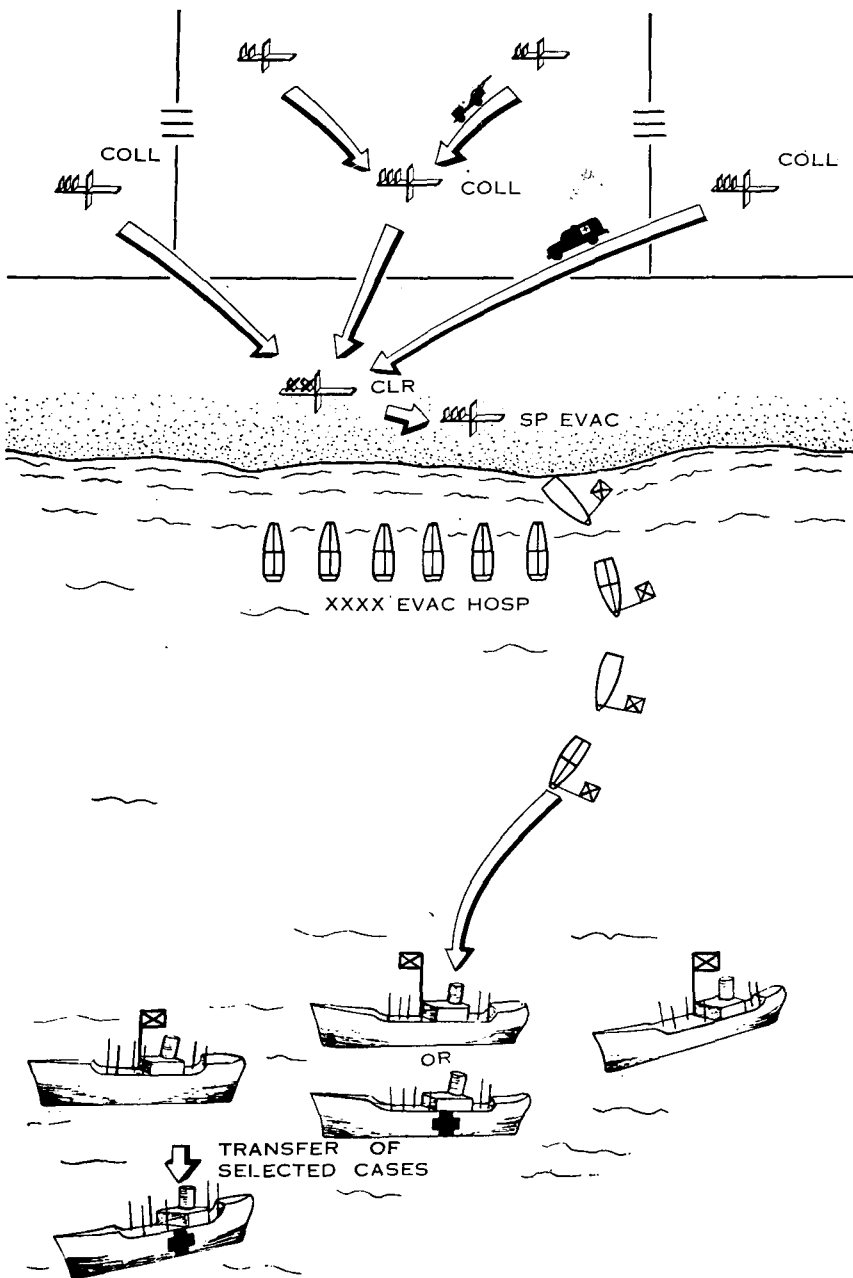


Figure 34. Division evacuation chain completed. Army phase beginning. Normal land medical evacuation follows.

Section V. OPERATIONS ASHORE

267. SHORE-TO-SHIP EVACUATION

a. Shore-to-ship evacuation is a planned, orderly, and progressive sequence of events. With or without specially constructed hospital ships, certain vessels in each attack force are designated as hospital ships. These ships are assigned the necessary naval medical personnel to care for the number of casualties that the vessel is expected to receive. Transports selected as hospital ships are usually arranged so that deck space easily lends itself to the handling of litter patients, the hoisting and unloading of casualties, and the installation of operating rooms, wards, and other facilities. Certain other transports are equipped to receive casualties for the period of the initial assault.

b. Boats having casualties aboard display the appropriate signal flag and receive directions from the naval control boat. Casualties occurring in the assault boats are unloaded when the boat returns to a ship for its second trip load. This may either be at the ship of origin or another ship. However, it is usually undesirable to unload casualties into the same ship where troops are debarking.

c. Ships prepared to receive casualties display signals announcing their readiness. During this phase, the assault boats pick up casualties and transport them in the same manner as ambulances in a land operation. Designated hospital ships are comparable in every way to a division clearing station. The ships receive all types of casualties initially, and not until a convoy is almost ready to return to base does the classification and segregation of casualties by type begin.

d. Casualties are picked up on the beaches without regard to the delivering agency. The first casualties returned to ships are those occurring in the assault boats. After a short interval there will be a phase of casualties deliver by the litter bearers attached to the BLT. Following this phase, casualties will be received from the beach evacuation station, which is established by elements of the regimental shore party and which controls the transfer of all casualties to ships.

268. RELATIONSHIP TO DIVISION MEDICAL SERVICE

Casualties are evacuated to ships during all phases of the operation of the division medical service, but this evacuation is most direct in the phases preceding the establishment of the division clearing station or stations ashore.

a. During the *assault* of the BLT's, the ships receive casualties directly from the BLT, with the ships substituting for the regimental collecting station and the division clearing station. The operation is similar to a land operation, except that ambulances are replaced by boats.

b. After the *collecting station* is established ashore, the ships act only as clearing stations. At this time, the only difference between the amphibious and the normal land operations is the transfer point at the beach evacuation station.

c. After the *division clearing station* is established ashore, its activities are the same as for any other land operation: casualties are sorted and classified by types and severity of wounds; medical cases (diseases) are separated from injuries. This sorting allows the hospital ships to set up for one type of patient only. The hospital ships then act in the capacity of evacuation hospitals in support of the division. Ships not suitable for litter cases may be used for walking wounded or medical patients.

d. In *later phases*, after the division receives the direct support of a mobile army surgical hospital and one or more evacuation hospitals, sorting is more complete, and evacuation to ships proceeds only on call for certain types of patients to fill certain spaces.

269. HOLDING AREAS

a. Many delays in evacuation can occur during the period of the early assault waves. Direct fire on the assault boats, the need for a fast turn around, the inability of boats to beach, and offshore obstructions are some of the factors that may prevent the early evacuation of casualties by assault boats. The litter squads may require more time than is required for the first several boat waves to make their scheduled turn arounds. If casualties accumulate on the beach, holding areas are provided. These areas should offer some protection for the wounded and should be far enough inland to be clear of beach operations but close enough to the boat approaches to allow the casualties to be loaded quickly. Some of the medical personnel ashore are detailed to care for the held casualties. A collecting station acts as a small holding station for a short time while evacuation is being consolidated.

b. Ordinarily, space allotted for a beach evacuation station is ample to include a holding area. Medical installations on beaches, as elsewhere, are not located near class III or V dumps. Space is made available to handle a sudden large influx of casualties that may occur in the bombing of ships unloading on the beach. Under these conditions, the evacuation station or collecting station also acts as a sorting station. Personnel with relatively minor injuries are examined, collected, and sorted by unit. After undergoing treatment for shock they are returned to their unit.

c. Holding areas are rarely required by BLT's or regimental medical sections after leaving the beach. When in contact with the litter bearers from the collecting platoon, the battalion aid stations normally

do not move casualties when the stations displace. One man from the aid station usually waits with these casualties and reports to the battalion surgeon when the last is picked up by the litter bearers. He also guides the litter bearers to the new aid station site.

d. When distances are long, small groups of casualties may accumulate at litter relay points. These, like the casualties found in the aid stations and collecting station, are considered as moving and are not considered to be held casualties unless the numbers increase, or unless the delay in evacuation requires the administration of additional treatment.

e. If collecting stations are far inland and without vehicles, they are likely to accumulate casualties. With the support assigned to the BLT's, the collecting platoon can rarely set up a series of litter relay points to cover all three BLT's, especially if distances are great or the terrain is difficult. Similarly, if the collecting platoon is without its vehicles, the division ambulance support is probably also missing. Under these circumstances an inland holding area becomes necessary, and repeated treatments with short supplies are contemplated, utilizing to the maximum the bundled supplies dropped by troops on the beaches for such emergencies.

270. SUPPORT OF SMALL ISOLATED OPERATIONS

The medical support of small isolated operations is tailored for each operation. In general, medical troops organic to the unit being used in the operation are adequate for most of the unit's needs, providing casualties are normal and evacuation is not difficult.

a. A *BLT* operating as a separate task force should double its litter bearers if opposition is expected. If casualties are to be held for a predetermined time or pending a link-up with a larger force, the aid station personnel are also reinforced by technicians. In these circumstances, the additional personnel are attached to the battalion medical platoon supporting the BLT, and are under the BLT surgeon's control. If the parent regiment is not committed, the medical company can usually provide the necessary reinforcements.

b. *RCT's* operating separately need additional manpower for evacuation and reinforcements in specialized fields—dental teams, malaria control teams, or additional medical officers and technicians. If the RCT expects a great number of casualties, the ambulance platoon and the clearing platoon from the division medical battalion are also attached. The battalion clearing platoon is reinforced with professional teams from outside sources. These teams, like surgical teams, operate better with the battalion clearing platoon than when attached directly to the RCT.

271. AIR EVACUATION

a. Air evacuation does not normally enter into the planning or functioning of the evacuation system in amphibious operations. It cannot begin until landing space for aircraft is available—by that time most of the assault casualties have been evacuated to ships. Air evacuation requires the same planning on the ground and the same manpower that overland or water evacuation requires, and the manner of collecting the casualties is the same. Air evacuation is also limited in amphibious operations by the numbers and types of available aircraft.

b. Liaison type aircraft can be adapted for carrying litter patients, but the numbers that can be evacuated by this means are limited. In amphibious operations, landing strips and liaison aircraft are vitally needed for their primary purposes. Liaison aircraft specifically designated as ambulances from shore-to-ship possess no advantage over boats. However, these aircraft are useful and valuable for the evacuation of isolated casualties.

c. Air evacuation of a large number of casualties by transport planes can be organized after the beachhead is firmly established and airfields are available. This organization is the same as for any other operation, as far as the collection of casualties is concerned. There is an additional requirement for a holding unit to care for casualties awaiting evacuation at the airhead and for personnel to load the aircraft. These factors are taken into consideration in planning for this phase of the operation.

d. Depending on the availability of helicopters, these craft may play an important role in the evacuation of early casualties before the establishment of normal air evacuation.

CHAPTER 11

THE REGIMENTAL SHORE PARTY

Section I. INTRODUCTION

272. GENERAL

a. This chapter outlines the organization and functions of the regimental shore party. See FM 60-5 for the organization and functions of the battalion shore party.

b. Elements from the division shore party are designated as the regimental shore party when employed in the support of an RCT. This party is organized and trained to develop the beach support area and to provide logistical support for an RCT in an assault landing. It includes a small headquarters detachment, an engineer shore company, and reinforcements. When conditions indicate a need for more than a minimum shore party strength, an engineer shore battalion may be committed to support the landing in an RCT sector.

c. The regimental shore party has the personnel and equipment needed to clear the beach of mines and other obstacles; to organize and secure the beach support area; to assist personnel, vehicles, and supplies across the beach; to construct and maintain beach facilities; to evacuate casualties and prisoners of war from the beach; to construct and maintain exit roads; to repair, maintain, or salvage boats and vehicles; and to establish onshore supply dumps.

d. The regimental shore party is a flexible organization. Its operations are extremely varied before the landing of other division shore party elements, as a result of the limitations in trained personnel, the characteristics of the landing area, and the duration and type of support required by the RCT.

273. MISSIONS

A regimental shore party may be assigned one or more of the following missions:

a. To support the RCT by establishing, operating, and defending all shore installations needed for debarkation, supply, and evacuation. These installations provide for the continuous movement of personnel, vehicles, and supplies from the ships, across the beaches, and to the using agencies.

b. To provide landing craft and ferries to unload heavy shipping.

- c.* To provide battalion shore parties for ship-to-shore landing operations.
- d.* To provide craft and battalion shore parties for shore-to-shore operations.
- e.* To provide ships platoons, or hatch crews, for the discharge of ships.

274. PRINCIPLES OF SHORE PARTY OPERATION

- a.* Fighting troops cannot successfully engage the enemy on a beach-head perimeter and unload supplies and equipment at the same time.
- b.* Proper unloading and distribution of supplies from ships is just as important as proper loading.
- c.* Manpower alone is not enough for handling and unloading supplies on a hostile shore. Special equipment and organization, and trained personnel are needed.
- d.* A central authority ashore is needed to control and coordinate the unloading and disposition of supplies.
- e.* An unloading organization must be in operation until supplies and equipment no longer arrive over water. Shore parties revert to the control of, and are consolidated under, each higher command as the command is established ashore.

Section II. FUNCTIONS AND ORGANIZATION

275. GENERAL

Units from the amphibious support brigade and naval beachmaster unit make up the division shore party. The division shore party provides the units and personnel for the regimental shore party. If amphibious support brigade units are not available, specially trained corps engineer and naval units are used.

276. FUNCTIONS OF A SHORE PARTY

- a.* The shore party normally marks the beach for seaward recognition, assists in clearing approaches to the beach, assists in marking underwater hazards, and establishes communication with elements afloat. It also selects beach exit routes, improves landing points if necessary, and eliminates all obstacles impeding rapid movement across the beach. Ship-to-shore routes for craft are cleared from deep water to firm ground, as are inland routes for vehicles and foot columns. Beach approaches and routes across the beach are marked. Communication is established with the RCT command post and with all shore party elements, both afloat and ashore.
- b.* Shore party duties also include—
 - (1) Stevedoring.
 - (2) Lightering.

- (3) Lighterage control.
- (4) Unloading lighters at beach.
- (5) Shore service for army craft.
- (6) Further amphibious support of land warfare (shore-to-shore operation).
- (7) Internal signal communication.
- (8) Construction of facilities for unloading.
- (9) Establishing and operating an information center for incoming troops.
- (10) Determining land utilization within the beach support area.
- (11) Establishing and maintaining perimeter defenses.
- (12) Constructing roads, parking areas, and hardstands.
- (13) Transporting supplies to dumps.
- (14) Unloading, storing, and issuing supplies at dumps.
- (15) Establishing and operating water points.
- (16) Establishing ordnance repair service for all troops within the beach support area.
- (17) Evacuating casualties from the landing force.
- (18) Holding and evacuating prisoners of war.
- (19) Controlling road traffic.

277. THE AMPHIBIOUS SUPPORT BRIGADE

a. The amphibious support brigade is the special amphibious unit equipped and organized to perform shore party missions. The basic operating unit of the amphibious support brigade is the engineer amphibious support regiment.

- (1) The brigade has three engineer amphibious support regiments. With proper attachments, the brigade can organize and operate the beach support area for a corps with three divisions abreast.
- (2) The engineer amphibious support regiment, with attachments is called a division shore party. It can operate a division beachhead.
- (3) Division shore parties can be subdivided into units for supporting independent regimental and battalion combat teams. However, division shore party units normally are assigned definite tasks and areas of responsibility.

b. In a shore-to-shore operation, the boat battalion of a reinforced engineer amphibious support regiment will provide enough craft to move the assault elements of a RCT in one trip. As the LCM is the largest landing craft in the engineer amphibious support regiment, attached naval LSU's or larger craft are needed to transport the tanks with the RCT.

c. In a ship-to-shore operation, the craft of the boat battalion can

be used to supplement naval craft during the assault, remain in the objective area for use in unloading supplies, or be used in shore-to-shore flanking operations.

d. With a landing force smaller than a regimental combat team, such as a BLT acting alone, the logistical problem can be solved normally without a regular shore party. In this type of operation the engineer amphibious support regiment provides a liaison officer with a small detachment and radio equipment, to coordinate the resupply convoys of landing craft in the beach support area. Only such craft and control personnel as are required remain on the far shore for minor tactical missions. The S4 of the BLT sends the necessary trucks and personnel to meet arriving convoys, clear the beach, and pick up supplies.

278. ORGANIZATION

a. In a *ship-to-shore* amphibious operation, both army and navy units make up the regimental shore party. When the division shore party is built around amphibious support brigade units, a reinforced engineer amphibious support regiment usually forms the division shore party. During the assault, the regimental shore party consists of a shore company reinforced with a naval beach platoon and other army service units.

b. In a *shore-to-shore* operation the Engineer Amphibious Support Regiment normally supports the RCT landing. An attached boat maintenance platoon is required. Appropriate echelons of the Regimental Headquarters, Shore Battalion, and Boat Battalion may be held on the near shore to handle embarkation and follow-up or resupply loading. The shore battalion provides the shore party on the far shore. Various types of army troops may be attached; for example, an engineer combat company, a military police platoon, a quartermaster service company, a port company, a truck company, or an amphibious truck company. Naval elements attached may include a naval beach detachment, two to four LSU's, and two to four LSM's.

Section III. PLANNING

279. GENERAL

a. Planning for effective shore party operation requires accurate intelligence of the enemy, weather, terrain, and obstacles. When the obstacles to be overcome and other tasks are known in advance, a simple plan for shore party operation is adequate. This plan includes the details of the tasks to be accomplished, and the sequence and timing for landing personnel and equipment.

b. When complete and accurate intelligence is not available, the shore party plan is made flexible to cover any unforeseen tasks. Based on this plan, all shore party elements land with specific instructions, as to primary and secondary tasks.

280. EQUIPMENT REQUIREMENTS

a. After the sequence of tasks for the shore party plan is established, the equipment, supplies, and accessories are determined, and special consideration is given to available types and capacities of heavy equipment, such as bulldozers. The shore party plan is completed and approved in time to allow for the delivery of equipment and supplies for the operation.

b. Amphibious landings may occur on any type of coast or in any climate, and enemy obstacles may take any number of forms. Each situation determines the special equipment needed. See FM 60-5 for a list of basic equipment needed by a battalion shore party.

281. PERSONNEL REQUIREMENTS

Personnel requirements for shore parties are determined together with the equipment requirements. The mission, weather, terrain, enemy situation, and availability of shipping are considered. After the regimental shore party commander receives the battalion shore parties' requirements, he consolidates and submits them to the division shore party commander. Based on these requirements and the scope of the shore party mission as affected by follow-up units and resupply tonnage rates, the division shore party commander requests the attachment of certain corps or army troops to the division shore party for further attachment to lower units.

282. D-DAY DISPOSITIONS OF SHORE PARTY PERSONNEL AFLOAT

a. Elements of the shore companies, with their associated nondivisional engineer combat companies and service units, bulldozers, and other equipment required for tasks ashore before the beaching of LSM's and LST's, are attached to embarkation groups and are embarked in transports or in LSD's. Elements of shore companies are assigned to waves of landing craft to insure landing on the proper sections of the beach and in the sequence required by their tasks. Shore party elements may be attached to regiments and BLT's during the voyage to the objective area and during the early hours of the assault landing, even though they are to be part of a division shore party.

b. Shore party elements that land with scheduled or on-call assault waves are—

- (1) Reconnaissance parties.
- (2) Command parties.
- (3) Gap assault teams.
- (4) Other operational groups.

283. EMPLOYMENT OF SHORE PARTY PERSONNEL ON D-DAY

a. Gap assault teams clear lanes through beach obstacles.

b. Shore platoons and bulldozers of the shore companies, and attached engineer combat companies, construct roads, clear areas, build unloading causeways for landing ships, and tow stalled vehicles, and trailers without prime movers, across the beach.

c. Reconnaissance and command parties check the practicability of plans and make changes and establish communications.

d. Naval beachmaster elements direct boat traffic in the beach area, establish communications with ships, and transfer casualties to craft.

e. Medical aid men from the medical detachment, engineer amphibious support regiment, and the attached medical company, give first aid in the beach support area and establish beach evacuation stations for collecting and evacuating the wounded.

f. In some instances, it may not be practicable to conduct general unloading nor even to start operations for a beach support area until the enemy is cleared from his shore positions. This is especially true in assaulting a small, heavily defended island where neither the enemy nor the attacking troops have any room to maneuver. Where these conditions exist, only emergency supplies specifically requested are brought ashore.

g. Additional shore party elements are landed on call, as the progress of assault troops permits them to exercise their normal functions.

284. SHORE PARTY PRIORITIES

The shore party elements required ashore early on the day of the landing, and the sequence in which they are needed, is necessary information for assault BLT's. These elements are—

a. Gap assault teams from shore companies or nondivisional engineer combat companies. Where obstacles are extensive and in depth, and it is determined that limited trained shore party personnel should be conserved for the support mission, special gap assault teams are provided.

b. Shore company reconnaissance parties with records, beach markers, operators with portable radios, and messengers.

c. Naval beach party personnel to check the suitability of landing

points for LSM's and LST's, direct boat traffic at the beach, establish communications, and transfer casualties.

d. Medical reconnaissance personnel to check sites for aid stations and clearing stations.

285. BEACH ORGANIZATION

a. The preparation of a plan for the organization of the RCT beach support area is important. Normally installations shown by overlay, map, or sketch include—

- (1) Landing points for craft of all types.
- (2) Regimental shore party command posts.
- (3) Positions for each security element.
- (4) Roads and beach exits to be constructed.
- (5) Dump sites for supplies that are landed.
- (6) Dewaterproofing station.
- (7) Prisoner of war stockade.
- (8) Beach evacuation station.
- (9) Information centers.
- (10) Traffic circulation plan.
- (11) Personnel and vehicle transit areas.
- (12) Bivouac areas.

b. The beach organization plan is prepared after a study is made of all available maps, terrain studies, aerial photographs, and other information about the beach, weather, water, and adjacent land areas. The regimental shore party commander prepares this plan under the supervision of the division shore party commander, who coordinates all regimental shore party plans. During the preparation of the beach organization plan, the regimental shore party commander maintains constant liaison with the RCT commander.

Section IV. TRAINING

286. TRAINING AREAS

The shore party for an RCT requires a considerable training area. A portion of a shore line is required for practice in mine removal, beach organization, and communication installation. Suitable areas are needed for range and field firing of organic weapons and for obstacle demolition training.

287. TRAINING EQUIPMENT

Equipment other than its organic weapons and equipment required for shore party training includes—

- a.* Landing craft for training in loading, debarkation, and resupply.
- b.* Beach roadway construction materials.

- c.* Realistic mock-ups of expected obstacles.
- d.* Explosives, equipment, supplies, and accessories for demolition training.
- e.* An adequate tonnage of supplies of all types and a complement of special cargo handling gear for operational training.
- f.* Ramp, causeway, pier, and wharf construction materials.

288. BASIC TRAINING

Basic or refresher training for shore party personnel includes the use of individual and crew-served weapons; installation, operation, and maintenance of communication facilities, including current signal operating instructions; techniques of mine detection and disposal and obstacle reduction and removal; craft loading and debarkation; cargo identification and tonnage estimation; and beach exit roadway construction and maintenance and ramp, causeway, pier and wharf construction and maintenance. Training also includes subjects common to the RCT as a whole; for example, air, radiological, biological, and chemical defense.

289. ADVANCED TRAINING

a. The shore party receives the most effective combined training by rehearsing with the RCT. Emphasis is placed on reconnaissance for beach obstacles, organization for clearing work, layout of beach support area, communication, dispersion, resupply organization, evacuation, control, and security in all phases of the landing. The objective of combined training is to produce an effective shore party that is welded with the assault RCT into a single unit. This is accomplished by positive control, communication, standing operating procedures, and mutual understanding.

b. Advanced unit training includes consolidated operation of the division shore party with particular emphasis on communication, area organization, traffic control, and the integrated use of attached units.

Section V. OPERATIONS

290. EMBARKATION

Before embarkation, the shore party collects and waterproofs its organic equipment. The RCT commander may use shore party personnel to assist in supervising the loading. The shore party commander is responsible for loading his equipment and personnel on time.

291. DEBARKATION

a. The Navy exercises general control of ship unloading operations, but the RCT, with its supporting shore party, unloads its own assault

equipment and supplies according to the debarkation schedules. Accompanying supplies are combat loaded on vehicles. When the RCT is transported on vessels such as APA's, unloading is a problem. RCT vehicles must be lifted from hatches by ship's gear, loaded on LCM's or other craft, and transported to the beach after the landing of assault waves. The ship's platoons, allotted to transports, normally support RCT's but operate under the direct supervision of RCT and BLT unit loading officers, who make sure that unloading is accomplished according to the RCT landing schedule. Naval ship's crews assist in the unloading. After the landing phase, supplies remaining on transport and on resupply vessels are unloaded by port companies under division shore party control. It is preferable that these port companies have been utilized as ship's platoons during the assault landing, thus avoiding a difficult redistribution of personnel on ships.

b. Assault craft carry only hand-carried supplies. As many supplies as possible accompanying the assault troops are loaded on vehicles. Bulky and heavy items requiring mechanical unloading are unloaded after the assault phase by the shore party, assisted by personnel landing with the equipment. The shore party assists vehicles stranded or damaged in the beach support area. The shore party unloads all resupply equipment and supplies from craft until port facilities are established. See paragraphs 166-187 for details of debarkation.

292. LANDING PHASE

Regardless of whether the shore party lands in scheduled waves or on call, the reconnaissance command elements land first. First they verify the work to be done and the suitability of the shore party plan for the initial tasks. Then they supervise the landing, assembly, and initiation of work by all shore party elements. See paragraph 276*a* for details of the functions of the regimental shore party.

293. ORGANIZATION OF BEACH SUPPORT AREA

a. During the landing, reconnaissance and command elements of the regimental shore party study the area previously selected for development as the RCT beach support area. The width of this area approximates the RCT frontage. It includes the water approaches to the beach and extends far enough inland to provide a suitable defense line and an adequate area for dispersed storage of supplies. If possible, it includes lateral beach roads.

b. The depth and development of the beach support area depend largely on whether or not other units are to follow the assault RCT over the same beach.

- (1) When other units are not landed on the same beach, or when the beach is not to be used for resupply, a small, hastily

organized beach support area is adequate. In this case, communication, security, and evacuation are the primary considerations. Security is provided by shore party personnel and organic weapons, and by dispersion of installations. The RCT commander is responsible for the defense of the RCT beach support area.

- (2) If other RCT's land over the same beach, the shore party of the assault RCT starts the full development of the beach support area. After the assault phase, reconnaissance and command elements of the division shore party land and supervise the organization of the beach support area under division control.

294. OPERATION OF THE BEACH SUPPORT AREA

Once the major problem of organizing the beach support area is solved, operation is relatively simple. If movement by vehicle from the waterline is practicable, supplies can be easily trucked to dumps. If hand-carry is involved, a maximum physical effort is required. No supplies are allowed to accumulate on the beach. Accurate records are kept to show supplies by type unloaded, on hand in dumps, and issued. Resupply craft are used for evacuation. Normally a regimental beach support area is needed for only a few days. By then, supplies are depleted by issue.

295. SECURITY

The RCT beach support area is subject to ground, air, and sea attack. The regimental shore party disposes its crew-served weapons to best cover all probable approaches and locates outposts and defensive positions to be occupied on order in defense against enemy elements which may infiltrate or penetrate the RCT lines. All troops dig individual shelters as soon as practicable. The command post, message center, information center, and other key installations are dug in and provided with overhead cover. Air guards and gas sentries are posted. The shore party is included in the RCT and Navy warning nets. The possibility of attack from the sea is considered.

CHAPTER 12

COMMUNICATION

Section I. INTRODUCTION

296. GENERAL

This chapter describes the joint communication requirements of the RCT and presents the methods, principles, and responsibilities for joint communication. It deals primarily with the RCT as part of a larger force, but the principles involved are equally applicable to an RCT operating separately.

297. RESPONSIBILITY FOR COMMUNICATION

a. Every commander is responsible for establishing and maintaining the communication system of his unit and for its efficient operation as part of the next higher system.

b. Between higher and lower units, communication is established and maintained by the higher.

c. Between adjacent units, communication responsibility is prescribed by the next higher common commander. In the absence of such orders, communication is established from left to right.

d. A unit supporting another unit by fire establishes and maintains communication to the supported unit.

e. A unit supporting another unit by service is responsible for making the initial contact with the supported unit to arrange for communication.

f. Responsibility for signal training and signal supply is prescribed by service (Army, Navy, and Air Force) rather than by command echelon.

g. Communication between landing force elements and supporting air and surface units is a mutual responsibility. Liaison officers and observers from higher headquarters bring with them communication personnel and equipment.

h. Services operating together combine all similar communication agencies, when practicable, and the service having the paramount communication interest is responsible for the operation of these combined agencies.

i. Internal communication for each service is operated according to the regulations and procedures of that service. Such operations are subject to—

- (1) Modification by mutual agreement.
- (2) Restrictions imposed by the local tactical commander for technical or security reasons.
- (3) Procedures prescribed by higher authority.

298. PROBLEMS PECULIAR TO AMPHIBIOUS OPERATIONS

Amphibious operations present special communication problems.

a. Due to the various forces involved, there is a need for providing an efficient means of exchanging information and orders between the Army, Navy, and Air Force. This is solved by—

- (1) Uniform planning and training.
- (2) Liaison between signal and communication officers of the landing force and their opposite numbers in the other services.
- (3) Establishing special communication channels that are functional in organization and do not necessarily follow the chain of command.
- (4) Using authorized cryptographic systems and communication procedures.

b. The physical restrictions resulting from the impracticability of using other than radio and visual facilities during the voyage and landing are countered by—

- (1) Maintaining the security of the radio plan.
- (2) Maximum use of all radio channels.
- (3) Providing for the early use of dispatch boats and liaison planes or helicopters in the landing and assault phase.
- (4) Using radio relay equipment for initiating telephone communication from headquarters aboard ship to headquarters ashore as soon as possible.
- (5) Continuous development and improvement of wire communication and other means ashore.

c. The technical limitations of radio include the range of sets, battery life, and operational difficulties. These limitations are made more acute by the lack of equally rapid alternate means, but are overcome by—

- (1) Training all personnel in the proper use of radio.
- (2) Planning on the part of all echelons to make the maximum use of every available frequency.
- (3) Combining nets wherever practicable.
- (4) Close supervision throughout the operation to insure that assigned frequencies are accurately used.

d. Damage to electronic signal equipment from salt spray is minimized by—

- (1) Preparing electrical equipment needed in the ship-to-shore movement to resist the effects of salt spray.
- (2) Protecting equipment needed in the assault by waterproof bags and covers.
- (3) Establishing early salvage and maintenance operations on the beach; particular attention is given to counteracting salt corrosion.

e. The special loading of ships and craft encountered in amphibious operations requires that the signal equipment for the landing and the assault be stowed in readily accessible boat spaces.

299. PERSONNEL AND EQUIPMENT

The tables of organization and equipment of the infantry regiment allow the setting up of a highly flexible communication system. However, the communication requirements in an amphibious operation may exceed the capabilities of the personnel and equipment. An early study of the communication requirements for any particular operation will determine what assistance is required from higher commanders. The RCT communication officer informs the RCT commander of the additional communication personnel and equipment needed.

Section II. EMBARKATION AND REHEARSAL

300. INFORMATION TO BE EXCHANGED

As soon as the ship assignments of embarking units are determined, the following information is exchanged between ship and troop unit communication and signal officers.

- a.* Suitable diagrams showing the location of office and communication spaces.
- b.* Rosters showing the official duties of key naval, landing force, and air force officers.
- c.* Suitable distribution lists to insure that all interested officers receive needed information.
- d.* A list of fixed radio equipment installed in the ship for use by troop commanders.
- e.* A list of radio circuits, frequencies, and crystals that troop commanders require.
- f.* Lists of call signs, cryptographic systems, or other information pertinent to communication.

301. ADVANCE PARTIES

The communication officer of the RCT, before his unit embarks, arranges for communication facilities with his opposite number in the transport division. These arrangements include—

a. Assigning adequate space for the troop message center near the ship's communication office.

b. Detailing messengers to the ship's communication office, radio room, and signal bridge for message handling between those agencies and the troop message center.

c. Supplementing the amphibious force flagship headquarters personnel (naval) in the operation of the communication officers and ship-to-shore radio and visual circuits of mutual concern.

d. Assigning troop radio and visual communications personnel to duties under the supervision of the ship's communication officer to—

(1) Permit the ship to guard additional circuits.

(2) Maintain a high state of training in the troop communication specialists.

e. Preparing a directive prescribing shipboard communication procedure while embarked.

f. Stowing signal equipment so that it is available for frequent inspections during the voyage.

g. Sealing all organizational and personal recreational radio receivers to prevent radio emissions during the voyage.

302. EQUIPMENT

Before embarkation, communication officers make complete tests and calibrations of all communication equipment. If the fixed equipment on board ship is inadequate for the needs of troop commanders, arrangements are made to obtain and install the required additional equipment. The use of the organic equipment of embarked units for this purpose is held to a minimum.

303. LOADING PLANS

Troop communication officers arrange with loading officers and ship's communication officers for loading communication equipment. They make sure that this equipment is readily accessible and is stowed so as to allow the proper sequence in unloading. Equipment for use in the assault phase is stowed in message centers, auxiliary radio rooms, spare parts stowage, or other spaces under the control of the ship's communication officer. In these locations it can be serviced, and it is readily available for use en route, if needed. Spare parts and accessories for communication equipment to be landed are stowed with the associated equipment. Waterproof covers or bags are used

for equipment not inherently watertight or otherwise waterproof. Vehicular radio equipment, and the vehicles themselves, are waterproofed to the maximum extent. Boxes that are too flimsy to withstand handling in cargo nets are reinforced before loading. Pyrotechnics are stowed in the ship's pyrotechnics locker or in such other space as the ship commander designates.

304. COMMUNICATION FACILITIES

a. The communication facilities for the embarkation area are normally provided by higher commanders. Use of organic communication equipment is kept to a minimum. The use of radio is restricted for security reasons. Wire and messenger service provide the principal means of communication.

b. The communication system enables the embarkation officer to control the flow of supplies, equipment, and personnel from the dumps or storage areas and troops bivouacs to the loading area.

Section III. MOVEMENT TO THE OBJECTIVE

305. EXTERNAL AND INTERSHIP COMMUNICATION

a. During the voyage, the Navy provides all ship-to-ship and external communication. Tactical traffic essential to the maneuvering of the convoy has priority. It is often necessary to stop or delay troop traffic for this reason. This possibility is kept in mind by all troop commanders before originating traffic, and time must be allowed for the delay.

b. During the voyage, all outgoing troop communication is routed through the naval communication office. The following procedure is suggested for transmitting troop messages during the voyage.

- (1) *Outgoing.* Outgoing messages are originated by the commanding officer of troops or an authorized staff officer. Such messages are processed by the troop message center and delivered to the ship's communications office.
- (2) *Incoming.* A troop messenger in the ship's communication office receipts for the message and delivers it to the troop message center. The troop message center handles distribution.

306. WRITTEN COMMUNICATION

During long sea voyages, dispatch vessels, liaison planes, or helicopters are made available to provide intership written message communication. Schedules are normally established in joint movement and communication plans, but deviation from these schedules may occur because of the weather and tactical situation.

307. TRAINING

Training is conducted during the voyage to maintain communication specialists at a high state of efficiency. Naval communication facilities are used for training whenever practicable. A detailed study of operation and communication plans is made by all communication personnel.

308. EQUIPMENT CHECK

When nearing the objective, communication equipment is prepared for landing. Particular attention is given to the condition of batteries and waterproofing. Radio equipment is checked to see that dials are set and locked on the proper calibration for the frequency to be used and that proper crystals are installed.

309. NAVAL GUNFIRE CONTROL COMMUNICATION

Specially trained teams accompany the assault elements ashore to control the naval gunfire. The principal means of communication for controlling this support is radio. See paragraphs 200–203 for a discussion of naval gunfire communication.

310. AIR SUPPORT CONTROL COMMUNICATION

Tactical air control parties accompany the assault forces ashore with the required communication equipment to control air support. See paragraphs 233–237 for a detailed discussion of air support communication.

Section IV. LANDING

311. COMMUNICATIONS DURING SHIP-TO-SHORE MOVEMENT

Radio silence is normally lifted several hours before the landing is scheduled. This is done so that communication may be tested in advance and so that the assault elements will be correctly deployed. After radio silence is lifted, strict net discipline is maintained to prevent compromise of the radio plan or scheme of maneuver.

a. During the ship-to-shore movement, RCT elements make the maximum use of *naval radio equipment* for control. The use of RCT radio equipment is held to a minimum because of the salt water hazard. There is little need for extensive communication within scheduled landing waves. Control communication is provided through LVT nets, if landing vehicles are used.

b. If tactical communication equipment is used during the ship-to-shore movement, *rifle company tactical nets* are opened at a time designated in the order, or at the line of departure. The hand-portable

radio sets can operate through waterproof covers. The rifle company tactical nets normally are not opened until the assault elements have reached the beach.

c. BLT tactical nets, using portable pack sets, are established according to the communication plans. These nets are usually opened before the line of departure is reached.

d. One or more RCT tactical nets are established when radio silence is lifted. While afloat, BLT's should not be required to guard too many nets because of the hazard to equipment and limited operating space in the landing craft or LVT.

312. CONTROL COMMUNICATION

a. The control organization for a ship-to-shore movement reflects the requirements of all attack force elements. Representatives of the various tactical echelons of the landing force are embarked in control vessels of the corresponding naval echelons. Enough communication personnel are embarked with these representatives to operate the nets assigned in the joint communication plan.

b. Besides the control communication circuits, naval radio and visual circuits, prescribed in the joint communication plan, are available aboard control vessels.

313. FORMATION OF COMMUNICATION TEAMS

The communication personnel and equipment of communication platoons of battalion and larger units are divided into two or more self-sufficient teams for the amphibious operation. These teams are formed during the training phase and are so organized and trained that they are capable of furnishing all types of communication, though on a limited scale, for their unit. The teams are transported ashore in separate craft and are consolidated upon landing. This method of coming ashore insures the presence of a complete team, even though one or more of the teams become inoperative.

314. HANDLING AND CARE OF COMMUNICATION EQUIPMENT

Communication personnel are responsible for loading and unloading communication equipment. Communication equipment is given maximum care to insure continued operation. Unprotected fragile equipment is not handled in cargo nets. Radio operators are trained to protect radio sets from jarring and rough use, and all equipment is protected against submergence, weather, and enemy fire. Waterproofing for the ship-to-shore movement is essential. If waterproofing materials and bags are not available, covers are improvised from ponchos and canvas shelter halves.

315. LANDING OF HEAVY EQUIPMENT

Heavy or bulky communication equipment is not landed during the initial phase. Plans are made to unload heavy equipment when justified by the tactical situation and when it can be landed with reasonable safety. Communication personnel are present to supervise the unloading of this equipment.

Section V. COMMUNICATION ASHORE

316. GENERAL

a. Communication facilities are established ashore to provide for the tactical requirements of the assault force. The normal regimental communication system is developed as part of the system of the next higher command. The communication systems of the supporting elements are integrated into the regimental system. Shore party communication facilities are developed to provide control of the logistical support for the landing operations.

b. The communication system available to the RCT commander provides the means by which he can—

- (1) Control the movement of all troops under his command.
- (2) Control the fire support of all weapons including artillery, air support, and naval gunfire.
- (3) Control the logistical support of all units under his command.
- (4) Receive and transmit orders, information, and intelligence to lower, higher, and adjacent units.

317. TACTICAL

a. Communications centers are established ashore at the earliest practicable time. Communication facilities for these communications centers have the means for contacting the units moving inland and those units still embarked. The communications centers of the tactical units are netted by wire and messenger with the shore party message center. Each communications center afloat continues to operate until all troops have left the ship.

b. Radio nets may be opened during the ship-to-shore movement by use of naval equipment. Organic radio equipment replaces naval equipment after it is landed and dewaterproofed.

c. Wire nets are developed by the assault force to support the tactical requirements. When possible, the wire and radio systems parallel each other. Each assault battalion drops a line at the beach, and posts a wireman with the line. When the battalion shore party switchboard is installed, these lines are connected to it.

318. REGIMENTAL SHORE PARTY

The regimental shore party communication section establishes communication facilities for the regimental shore party.

a. A *communications center* is established to handle the shore party traffic.

b. The *wire section* installs the regimental shore party switchboard and lays wire to the RCT command post. Lateral wire communication between shore parties is maintained and improved. Wire connections are made as required to the beachmaster, dumps, and supply installations (fig. 35).

c. The *radio section* enters the established nets. Local nets are opened as required. The shore party may provide an alternate channel of communication with the RCT by establishing a station in the RCT command or administrative net (fig. 36).

d. The communication team with the transport division beachmaster maintains *seaward communication* as prescribed for the communication teams with the BLT beachmasters.

319. DIVISION SHORE PARTY

a. The communication personnel with the division shore party headquarters establish wire communication with regimental shore parties. Lateral lines between regimental shore parties are maintained as alternate means. Wire communication with division headquarters is established as directed.

b. Alternate means of communication seaward are kept in operation by the various beachmasters. The transport group beachmaster establishes his headquarters near the division shore party headquarters so that all facilities may be used jointly.

Section VI. COMMUNICATION AND SPECIALIZED TRAINING

320. TRAINING

As soon as practicable, all personnel are assembled in a marshalling area to engage in coordinated training for the operation. Schools are established for training personnel in the operation of the communication system. The scope of training, within the limits of security, includes—

a. Waterproofing and dewaterproofing of communication equipment.

b. Loading and unloading of communication equipment, including the use of cargo nets.

c. Studying the operations plans with particular emphasis on communication annexes, SOI's, and radio nets.

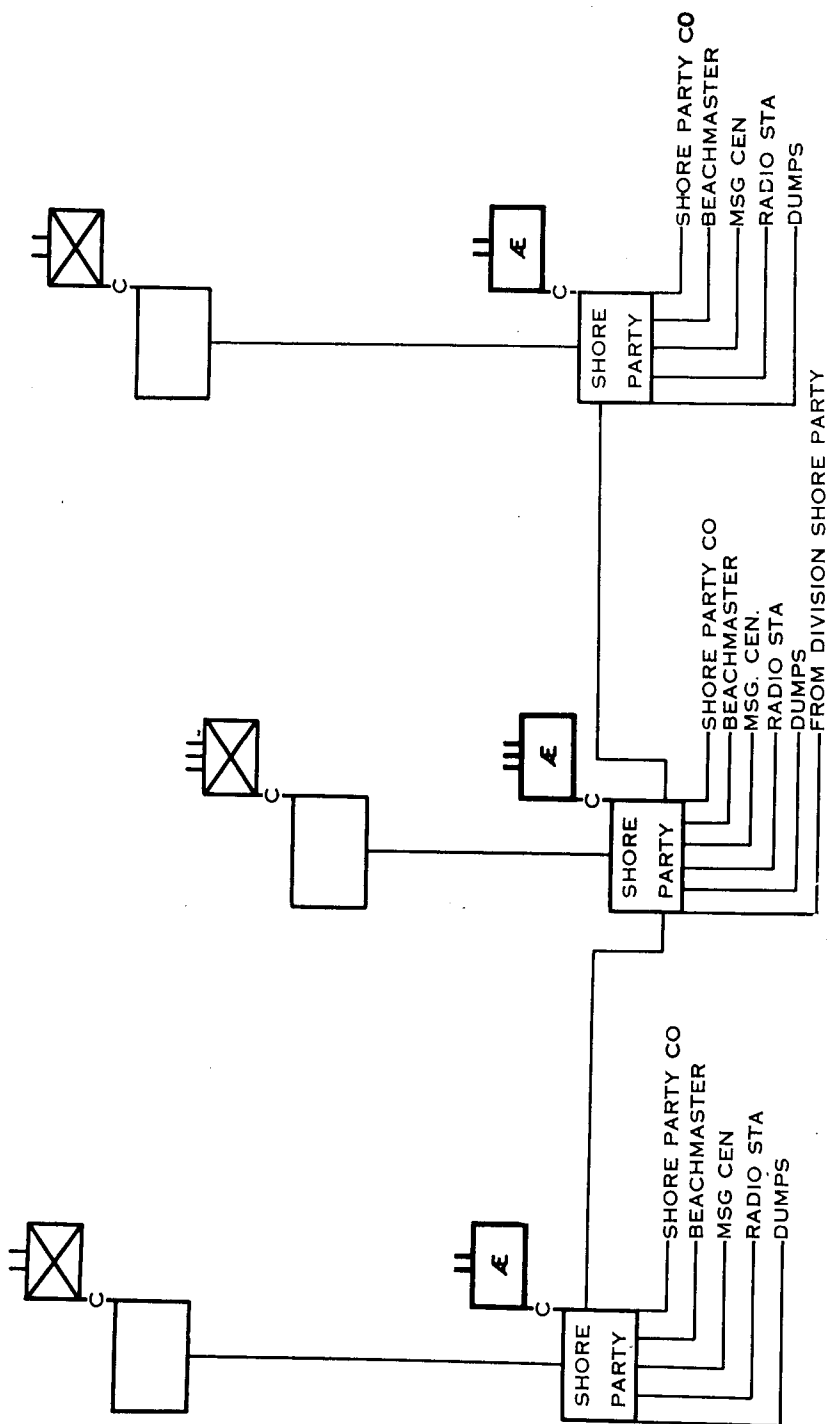


Figure 35. Shore party wire communication.

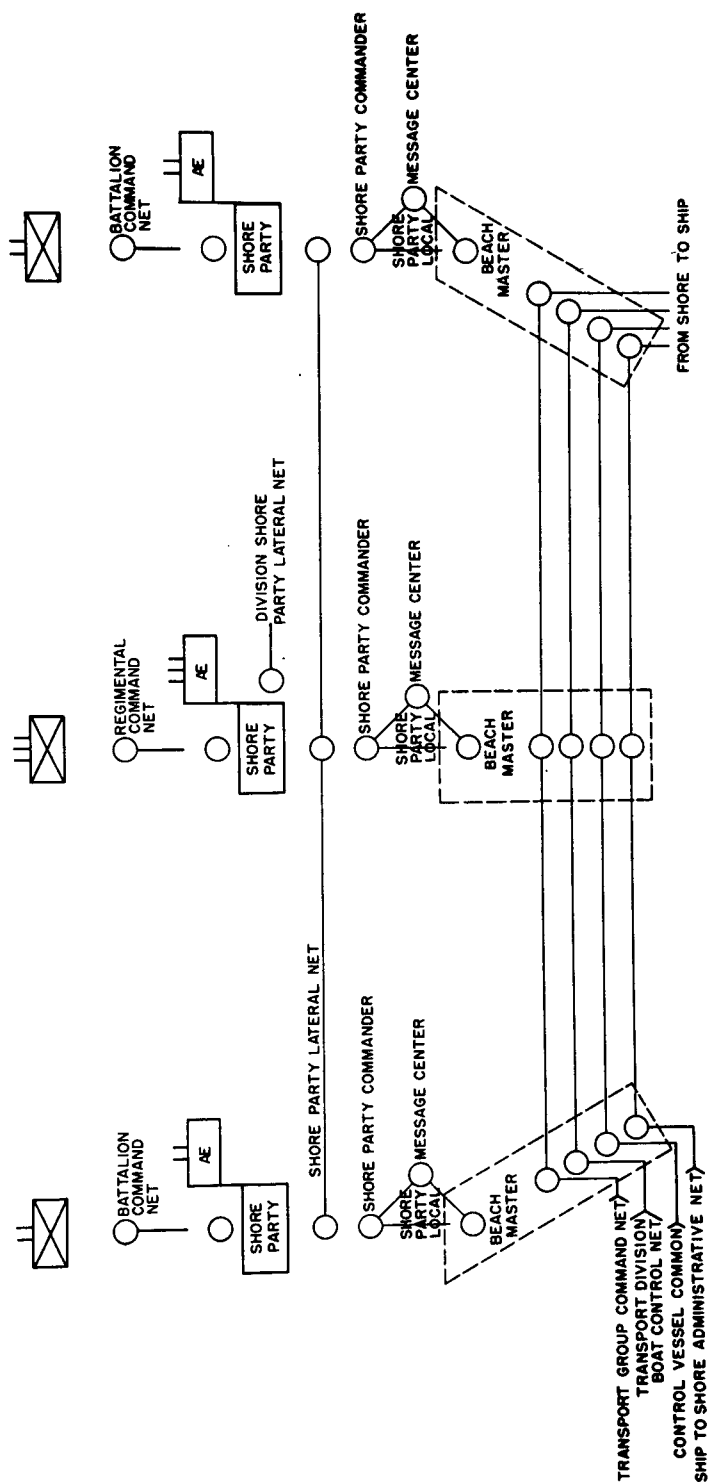


Figure 86. Shore party radio communication.

d. Familiarization with the territory involved in the operation, including the spelling of geographical names.

e. Studying task organization and names of commanders.

f. Practice in handling the cryptographic systems to be used.

g. Practice in using the army, navy, and air force communication equipment to be used.

h. Training in communication procedures with emphasis on circuit discipline and authentication.

321. EQUIPMENT

During the marshalling area training, complete signal equipment checks are made. Inspection teams of technically qualified personnel are formed to inspect all RCT communication units. These inspections are continuous and are designed to bring the force up to a high standard of efficiency. All deficiencies noted in these inspections are corrected, and special equipment is obtained in time for the operating personnel to become familiar with its operation before embarking.

322. COMMUNICATION FACILITIES

Communication personnel and equipment in the marshalling area are normally provided by higher commanders. The RCT communication personnel are not used to provide administrative communication. This insures that their training for the operation is similar to the system used in the operation. However, if the RCT provides its own communication in the marshalling area, the system is kept as simple as possible.

Section VII. COMMUNICATION PLANS

323. IMPORTANCE

The importance of communication planning cannot be overemphasized. Communication representatives of each service, Army, Navy, and Air Force, are fully informed as to the details of operational planning. They work in close collaboration with each other and with the communication staff of the higher commander until the completion of the final communication plan.

324. PLANNING CONFERENCES

The communication plan for an amphibious operation is made by integrating the communication requirements from each of the services and superimposing upon this the joint communication requirements. The communication requirements of the various services are reviewed, coordinated, and consolidated at the attack force headquarters. The first step in the communication plan is for the joint com-

mander to provide the commanders of each service with adequate information for the concurrent preparation of their communication requirements. Upon receiving this information, the communication and signal officers of each of the services confer with the communication section of the attack force. For coordination between services, the following items are considered:

a. Special markings for communication equipment to insure immediate identification and to aid in segregation during loading, landing, and consolidation.

b. The exchange and dissemination of instructions for routing traffic during various phases of the operation.

c. The establishment of distribution lists for various communication documents and papers.

d. The initiation of special security and deceptive arrangements.

e. The establishment of joint training facilities.

f. The frequency and crystal requirements for radio communication.

325. INDOCTRINATION CONFERENCES

As the regulations and procedures for the operation of communication systems vary somewhat in each service, the communication and signal officers of all services meet, discuss, and resolve any differences affecting the operation of the joint plan. To correct any conflicts or deficiencies, these conferences are held before and during planning as well as after rehearsals.

326. DEVELOPMENT OF COMMUNICATION PLAN

a. The communication plan is developed concurrently with the general planning. The RCT communication plan is developed by the regimental communication officer. He obtains necessary technical and administrative instructions from higher commanders and reconciles these instructions with the tactical requirements of his own commander.

b. Within security limitations, the communications officer obtains all available information pertaining to the over-all operation. This may include task organization, mission, date of operation, plan of operation, available shipping, date attached units join the RCT, availability of training area, transportation, terrain, and supply and resupply of communication equipment.

c. The communication officer of the RCT coordinates with the communication representatives of attached and supporting units to integrate their communication equipment and personnel into the RCT system.

d. The following is a check list of the factors considered in formulating the communication plan for the RCT.

- (1) Orientation of communication personnel.
- (2) Training.
 - (a) General.
 - (b) Specialized.
 - (c) Rehearsals.
- (3) Inspections.
 - (a) Personnel.
 - (b) Equipment.
- (4) Distribution list.
- (5) Traffic routing.
- (6) Communication documents.
 - (a) Preparation.
 - (b) Distribution.
- (7) Supply.
 - (a) Initial.
 - (b) Resupply.
 - (c) Special.
- (8) Marking of equipment.
- (9) Security.
- (10) Loading tables.
 - (a) Personnel.
 - (b) Equipment.
 - (c) Supplies.
- (11) Communication facilities.
- (12) Training area.
 - (a) Wire.
 - (b) Radio.
 - (c) Messenger.
 - (d) Sound.
 - (e) Visual.
- (13) Embarkation area.
 - (a) Wire.
 - (b) Radio.
 - (c) Messenger.
 - (d) Sound.
 - (e) Visual.
- (14) Aboard ship.
 - (a) Diagram of location of officer and communication spaces.
 - (b) Roster of naval, landing force, and air force officers showing official capacity.
 - (c) Distribution list.
 - (d) List of fixed radio equipment.
 - (e) List of radio circuits.

- (f) Message center.
- (g) Radio personnel.
- (15) Debarkation.
 - (a) Ship public address system.
 - (b) Communication between ships.
 - (c) Unloading communication equipment.
- (16) Landing and assault.
 - (a) Small boat control communication.
 - (b) Tactical net operation.
 - (c) Use of naval equipment.
- (17) Regimental communication ashore.
 - (a) Wire.
 - (b) Radio.
 - (c) Messenger.
 - (d) Sound.
 - (e) Visual.
- (18) Shore party communication, including beachmaster.
 - (a) Wire.
 - (b) Radio.
 - (c) Messenger.
 - (d) Sound.
 - (e) Visual.
- (19) Naval gunfire control communication.
- (20) Air support control communication.

327. COMMUNICATION DOCUMENTS

a. The *regimental standing operating procedure* (SOP) prescribes routine methods for installing, operating, and maintaining communication equipment. This SOP is reviewed for each operation and may be modified to meet the conditions imposed by each successive operation.

b. The *signal operation instructions* (SOI) for a joint operation are prepared by the communication section of the attack force. The division signal officer prepares the division SOI, using the information contained in the joint publication. The division SOI is distributed to units down to and including battalions. The communication officers of the RCT's and BLT's prepare extracts when necessary for use but where security prohibits the use of the complete SOI. Normally, SOI's are not prepared for units below division level unless the units are operating on independent missions.

c. *Paragraph 5 of the operation order* contains communication instructions arranged in lettered subparagraphs:

- (1) Subparagraph a refers to the signal annex and the effective index to the SOI. It may also include tactical or other

restrictions on the use of communication means, and the designation of the time zone to be used in orders and for communication in the objective area.

- (2) Subparagraph *b* gives the command post locations of the issuing unit and each of the principal lower units.
- (3) Subparagraph *c* prescribes the location and time of opening of advance message centers, control points, and other agencies where messages may be sent. It also gives the axis of signal communication.

d. The *signal annex to the operation order* is prepared by the communication officer and is distributed to all units which will receive the operation order. Additional copies are distributed to communication units.

CHAPTER 13

SPECIAL LANDING OPERATIONS

Section I. NIGHT LANDING

328. DEFINITION AND PURPOSE

A night landing comprises a ship-to-shore movement, assault of a beach, and seizure of a limited objective at night. Night landings are conducted to—

- a.* Take advantage of the concealment of darkness to obtain surprise and thereby delay and hamper movement of the enemy's reserve.
- b.* Eliminate or reduce the effectiveness of enemy strength that cannot otherwise be neutralized.
- c.* Take advantage of favorable hydrographical conditions that may occur only or primarily during darkness.
- d.* Deceive or create uncertainty concerning the landing.
- e.* Achieve secrecy in landing small reconnaissance or raiding parties.

329. CHARACTERISTICS

The characteristics of night landings have a decisive influence on the planning and execution of such operations. These characteristics are—

- a.* Limited objectives for assault echelons.
- b.* Well-defined objectives readily identifiable at night.
- c.* Close formation to maintain contact, control, and communication during ship-to-shore movement and after landing.
- d.* Special navigational aids and communications required to assist in maintaining direction.
- e.* Decreased effectiveness of the attacker's supporting fires.

330. ADVANCE RECONNAISSANCE

a. Advance reconnaissance for night operations is conducted to provide units with detailed information of the ground over which they are to assault. Particular stress is placed on determining the appearance of the landing area at night. If possible, RCT reconnaissance elements participate in the advance reconnaissance.

b. Reconnaissance and study of the area is completed well before the actual landing to insure complete dissemination of the information obtained. Any new information received after embarkation is given to appropriate units during movement to the target area.

c. Information relative to the landing beaches, their approaches, the terrain inland, the enemy positions, and the obstacles is considered in detail. Relief maps and charts showing this information are provided to assault unit commanders. All personnel of the RCT involved in the operation are thoroughly briefed.

331. SCHEME OF MANEUVER

The scheme of maneuver in a night landing differs from that of a daylight landing in that—

a. The column formation is normally used ashore.

b. The initial waves are employed as a covering force, moving only a short distance inland to assigned positions from which they can protect the landing of succeeding waves which pass through the covering force to the objective. This prevents the disruption of control of the main body by local action. A BLT normally acts as the covering force when an RCT makes a night landing.

c. All formations are less dispersed than in daylight operations. The column or close wedge is favored at all levels, except in the covering force.

d. Changes of direction are avoided if possible.

e. The exploitation of terrain is limited by lack of visibility.

f. Boundaries, intermediate objectives, and control lines must be easily identifiable in darkness.

g. Specific provisions for maintaining direction are made for all units. A magnetic azimuth is not normally adequate; additional aids are used, such as prior orientation of an unmistakable terrain feature against the skyline, pyrotechnics, and prelanded electronic aids. If the RCT is well trained for normal night attacks, little difficulty is experienced once the shore is reached.

h. The formation of landing craft conforms to the scheme of maneuver selected by the landing force commander. Boat waves move initially in close column and take up a close wedge formation in the assault. This aids in control by wave guides.

Section II. AMPHIBIOUS DEMONSTRATION

332. PURPOSE

A demonstration may be specifically intended to accomplish one or more of the following:

- a.* Divert or retard the movement of enemy ground reserves or naval and air forces.
- b.* Cause a dispersion of enemy defensive fires.
- c.* Conceal or protect preliminary reconnaissance operation.
- d.* Cause the defender to open fire prematurely, thereby disclosing his positions.
- e.* Begin a general air or naval engagement at a point remote from that of the actual landing.

333. RELATIONSHIP TO THE MAIN OPERATION

An attack force normally includes an embarked reserve and, frequently, embarked elements of the garrison forces which will garrison the objective area after the amphibious phase terminates. These forces, with their protective escort, may be employed profitably and economically to form the basis for a demonstration force.

- a.* A BLT or smaller unit of the reserve RCT of the reinforced division embarked in a transport division can conduct a demonstration. The entire reserve, or other forces, may be employed as a demonstration force and as such, contribute to the success of the main landing without actual commitment ashore.

- b.* The superior mobility of forces afloat permits their employment in such a maneuver with only slight effect on their availability to the attack force commander.

- c.* A demonstration force afloat is a continuing threat that may immobilize large enemy forces for a considerable length of time.

334. EXECUTION OF THE DEMONSTRATION

- a.* The organization of a demonstration force within the attack force usually requires no major alterations in the embarkation plan. The reserve RCT is embarked according to its planned employment in the landing.

- b.* The success of a demonstration is in direct proportion to the degree of realism involved in its execution. When used as a demonstration force, the reserve RCT guards equally against underplaying or overplaying its part since either tendency may destroy the desired effect.

- c.* It is important that enemy observers receive a convincing impression of preparations for a landing, or be denied observation entirely by the use of smoke or other means.

- d.* All visible aspects of the demonstration are authentic. These include the approach, the debarkation, movement to control vessels, formation of waves at the line of departure, and the beginning of the run to the beach. Also included are such details as wave guides with

pennants, the display and actual use of flag hoists on the control vessels, and the liberal use of smoke.

e. A brief but intense preliminary bombardment usually is more effective than deliberate harassing fire over a longer period of time.

f. It is not necessary that landing craft actually be loaded; however, token boat teams can be used if the enemy has observation over the transport area. When boat groups are formed, they proceed to the line of departure and move toward the beach according to ship-to-shore technique.

g. Smoke should be used to conceal the final movement of the boat waves. This causes the enemy to bring down prepared defensive fires on the beaches.

h. The movement of the boats may be reversed by either of two methods:

- (1) At a fixed time or distance from the beach, the boats reverse course and return to the line of departure.
- (2) The movement may be reversed on signal from a control officer detailed to accompany the first wave.

*

Section III. AMPHIBIOUS RAIDS

335. DEFINITION AND PURPOSE

a. An amphibious raid is an assault expedition involving relatively small forces which land, accomplish a mission, and retire within a limited time. An RCT is well organized for this type of operation. Amphibious raids may be classified as supported raids against strongly defended objectives, attacks on lightly held islands, or diversionary attacks involving a display of force.

b. Amphibious raids may support other landings or the operations of surface and air forces, or they may be conducted for independent reasons. In support of other landings, a raid may be executed to obtain information, to create a diversion, or to disrupt enemy communication and inflict damage. In support of surface or air operations, a raid may be employed to obtain information; to destroy enemy communication, electronic agencies, harbor, or air facilities; or to operate ashore as part of a naval demonstration.

336. SCHEME OF MANEUVER AND PLAN OF WITHDRAWAL

a. Simplicity is the first requisite in the plan for an amphibious raid. The mission and the scheme of maneuver for all units and individuals of the RCT is kept as simple as possible.

b. The landing plan should facilitate rapid execution of the attack. In general, the point selected for the landing should be near the objective, and the objective should be easily accessible from the

beach. However, surprise may be better achieved by selecting a difficult landing area, or an area more remote from the objective.

c. The plan for the attack is based on the teamwork of a well-trained, confident assault force. Fire and movement are coordinated and synchronized by schedule and a few simple signals. Major tasks are assigned so that the failure of one or more task units does not result in the total failure of the raid.

d. Supporting naval and air forces take part in planning the raid.

e. Naval gunfire support, if required, is usually furnished by light units providing a high volume of medium caliber fire.

f. Air support for an amphibious raid may include—

- (1) Photographic reconnaissance before the raid.
- (2) Local air defense and protective reconnaissance during the raid.
- (3) Air supply and air evacuation of casualties.
- (4) Close air support.
- (5) Diversionary attacks.

g. The withdrawal is a vital part of the plan, not only for recovery of the raiding force, but also because it usually is needed to completely execute the mission. Whenever possible, two or more points for reembarkation are carefully selected in advance and the plans anticipate the need for changing either the time or the place of withdrawal. The plans also include instructions for the evacuation of casualties, prisoners, and captured matériel.

h. The possible need for delaying action and the consequent sacrifice of a portion of the force to cover the reembarkation is accepted.

337. TASK ORGANIZATION

a. The task organization for a raid is similar to the task organization of an attack force. It includes naval, air, and landing force units tailored to fit the assigned mission.

b. The high speed destroyer transport (APD) is the primary vessel for amphibious raids although seaplanes, landing ships and craft, submarines, and PT boats may be employed.

c. Infantry units of the RCT form the nucleus for the landing force. Reinforcements normally include medical personnel, combat engineers, and intelligence and communication personnel. The size of the force and its reinforcements depend on the mission.

Section IV. ASSAULT AGAINST HEAVILY DEFENDED SHORES

338. SUPPORT FOR THE ASSAULT

Amphibious assault against heavily defended shores requires overwhelming fire support from naval and air forces. Demolition per-

sonnel and equipment needed to breach shore and underwater defenses are provided. After landing, units are provided close fire support by flat trajectory weapons on or near the beach to neutralize or destroy enemy direct fire weapons. Support is provided to protect the assault forces clearing paths through beach obstacles and destroying the fortified defensive system. RCT assault elements are specially trained for taking part in this type operation.

339. ORGANIZATION FOR ASSAULT

Organization of forces for the assault of heavily defended shores is generally the same as for any other assault landing but is specially adapted for the particular task to be accomplished.

a. Heavy naval gunfire support is provided. The fire of naval support craft is used in quantity against general or specific targets ashore for the close support of leading waves. Units are organized, trained, and equipped as demolition teams to remove all types of obstacles that may be encountered.

b. Strong air forces of all types are required to maintain air superiority, provide bombardment, and give close air support to the forces ashore.

c. When practicable, tanks or other armored vehicles mounting flat trajectory weapons accompany the assault waves. They support the attack by fire and they clear paths through obstacles with special equipment.

d. Airborne troops are capable of assaulting important coastal areas from the rear.

Section V. AMPHIBIOUS RECONNAISSANCE

340. GENERAL

In amphibious operations, two types of reconnaissance parties are employed. They are amphibious patrols and amphibious scouts. Amphibious patrols precede the landing by days or weeks. They are transported to the objective area by submarine, flying boat, PT boat or other means. Their mission is to gain information vital to the landing. Amphibious scouts precede the assault echelon by only a few hours. They are transported to the objective area in much the same manner as amphibious patrols. Their mission is last minute reconnaissance and marking of beaches. Amphibious patrols seldom come from the RCT but may be provided by the division reconnaissance company. Amphibious scouts for the RCT are usually made available from the intelligence and reconnaissance platoon. Troops taking part in amphibious scouting and patrolling missions are carefully selected and highly trained in performing reconnaissance mis-

sions. They are given only enough information to accomplish their missions.

341. NAVAL CONSIDERATIONS

The ship in which an amphibious patrol is embarked provides a boat officer and crew to transfer the patrol to a point near the shore where the patrol transfers to rubber boats to go ashore. The parent ship remains as far offshore as practicable from the patrol's landing point. Before getting into its rubber boats, the patrol is informed of its debarkation meteorological conditions, and any changes in information of friendly or enemy forces. Plans are completed for re-embarking the patrol and for sending and receiving messages.

342. LANDING AND ACTIVITIES ASHORE

If possible, patrols land over rocks or driftwood to avoid leaving tracks on the beaches. While approaching the shore, the men keep low in the boat. If the boat is not to be used again, it is sunk a short distance from the shore and the patrol swims ashore. If the boat is to be used again, it is carried inland, deflated, and concealed. On landing, patrols move promptly inland. When possible, they rest and observe during daylight. They send messages to the parent ship either by radio or visual signals, or by contacting a boat offshore. They can also send messages to aircraft by using panels or radio.

Section VI. SMALL ISLAND OR ATOLL OPERATIONS

343. TACTICAL CONSIDERATIONS

a. Landing on an atoll may be made from either the lagoon side or the sea side. Most large islands are on the windward side of the atoll, and the heavy surf usually prevents landings in strength from this side. Lagoon landing beaches are usually distant from the lagoon entrance. However, surf conditions do not impede the use of landing craft in the lagoon.

b. Because of the limited size of most atolls, extremely heavy naval gunfire and air bombardment can be concentrated on them. Coral atolls with slight elevations provide little natural cover.

c. The size of the island or atoll imposes distinct disadvantages on both the attacker and defender. The defender usually has small garrisons that are difficult to reinforce. He also has inadequate room to maneuver for a counterattack. The attacker is forced to make direct frontal assaults on narrow fronts and is usually unable to maneuver to the flanks.

d. Access to the area of the main assault may require the capture of additional islands to secure fire support areas or channels through

reefs for boat lanes. When obstacles such as reefs are present, landing vehicles are used in the assault waves until landing craft can be employed.

344. LOGISTICAL CONSIDERATIONS

a. In the assault phase, the amount of supplies landed is held to actual requirements of the assault elements. This is necessary because of the lack of dispersal areas and the slowness of unloading, caused by the use of amphibious vehicles and the movement of boat traffic through narrow boat lanes. Supply dumps are established close to the landing beach and may remain there throughout the operation.

b. The flow of supply is carefully controlled by using a floating pool of boats and amphibious vehicles. Each boat or vehicle is loaded with a type load and the control boat calls it in when needed by the shore party commander.

Section VII. WITHDRAWAL AND REEMBARKATION

345. GENERAL

Withdrawal of troops engaged in landing operations may be required by strategic considerations or by the tactical situation. The decision to withdraw is made by the authority having over-all responsibility for the operation.

346. PLANNING

Planning for a withdrawal and reembarkation is made by the landing and naval force commanders. Phases of the withdrawal are determined by the naval means available. When permissible, the plan usually provides for evacuation in this sequence: supplies, artillery, matériel, and troops. If the tactical situation is difficult, supplies, artillery, and matériel are destroyed. Secrecy is essential to deceive the enemy and to cover the movement of the forces. Local air superiority is necessary during reembarkation.

347. NAVAL SUPPORT

During a withdrawal, the naval force operations are similar to those during a landing but in reverse order. Besides the shipping needed to reembark the landing force, naval gunfire, air support, and communication are provided.

Section VIII. SHORE-TO-SHORE OPERATIONS

348. GENERAL

a. A shore-to-shore movement is a movement of troops, equipment, and supplies directly from the embarkation area to the hostile beach without transshipment at sea. It may involve a shore-to-shore movement followed by land combat. It may consist of successive displacements by water, or it may be a combination of both. Dependent only on the number and size of landing ships and craft available, it can be conducted by any unit.

b. The reinforced amphibious support brigade has enough landing craft to move the assault elements of one infantry division in one echelon. The engineer amphibious support regiment (part of the amphibious support brigade with attachments) has enough landing craft to move the RCT assault elements, less the regimental tank company in one echelon. Landing craft and landing ships from the Navy supplement this force and allow the heavier equipment, such as tanks, to be transported in the assault echelon.

c. Shore-to-shore operations are conducted for the same purpose as ship-to-shore operations. However, the limitations in the range of the landing craft reduce the distance over which movement can be made. Shore-to-shore operations also may be used for overwater envelopment from the main landing area to seize islands, atolls, or archipelagoes, to destroy isolated groups following a main landing, or to seize islands or areas for the installation of navigational aids or radar equipment.

349. CHARACTERISTICS

a. Shore-to-shore movement includes all the factors common to any amphibious operation. In addition it possesses certain other characteristics. The range of the movement is limited by the length of time or water distance over which landing craft and ships can operate and still get the force to the objective in fighting condition. This distance is usually not over 100 miles. Normally a shore-to-shore movement requires more landing craft than a ship-to-shore movement. Enough landing craft are needed to carry in one trip all of the troops, equipment, and supplies needed to seize and hold the objective. Transporting the force in one trip is necessary because the overwater distance is usually much greater than in the usual ship-to-shore movement, and the turn around time to transport reserves and supplies is also much greater.

b. Embarkation can be conducted more easily and quickly in a shore-to-shore movement. Equipment and supplies are limited because of the type craft involved. The time needed to plan and execute

a shore-to-shore movement is considerably less than that for a ship-to-shore movement.

c. The amount and duration of air support is usually greater because of the shorter distances involved. In many cases, land-based aircraft can be used.

d. If not held afloat, reserves and supporting units remain in readiness ashore in the vicinity of the embarkation area. The time involved in their movement may be considerably longer than in a ship-to-shore movement.

350. PLANNING

a. Planning for a shore-to-shore movement requires close coordination between elements of the amphibious engineers and the landing force. The RCT operating as a part of a division in a shore-to-shore movement is aided in its planning by the division commander, the amphibious support brigade commander, and the engineer amphibious support regiment commander.

b. The division commander and the amphibious support brigade commander normally plan the organization of the embarkation points with landing points for ships and craft, cargo slots (points where cargo is assembled for loading), embarkation point control officers, personnel and vehicle assembly areas, routes, traffic control, designation of beach control officers and parties provided by the amphibious support brigade, and instructions to define responsibilities between embarkation group commanders and shore party beach control officers. The division commander plans the stocking of cargo slots and regulates traffic between embarkation points, unit bivouacs, and depots or supply dumps. The amphibious support brigade is charged with the preparation of schedules and instructions for boat movement, navigation, convoy direction, and control necessary to embark, transport, and land the RCT.

c. The RCT commander coordinates with the engineer amphibious support regimental commander in matters relating to embarkation point operation and the assignment of shore party personnel to boat teams and waves. The RCT commander plans the loading of craft and the movement of troops and equipment to embarkation points.

351. EMBARKATION

a. The engineer amphibious support regiment executes the plans for preparation of the embarkation areas. It provides the over-all control and signal communication necessary for coordination and liaison between the embarkation point and the RCT. The shore party is responsible for the engineering work involved in clearing assembly areas and loading slots, opening and maintaining beach access roads,

constructing and maintaining causeways, establishing a beach communication net, providing dozers and cranes to aid in loading, and providing technical advice and assistance to troop commanders.

b. Boat units are allotted to tactical units, and loading is planned and executed by tactical commanders with unit commanders of the amphibious support brigade as advisors and assistants. The amphibious support brigade executes the movement of boat units according to an established schedule to load bulk cargo, mobile equipment, and personnel, in that order.

c. RCT commanders are responsible for preparing loading plans, providing ship's platoons to load ships, providing labor and trucks on the embarkation beach to move cargo from slots, and coordinating the movement of troops and vehicles into assembly areas and then to loading slots.

CHAPTER 14

AMPHIBIOUS TRAINING

Section I. INTRODUCTION

352. FUNDAMENTAL REQUIREMENTS

The discussion of amphibious training in this chapter is based on the following premises:

a. All individuals must have completed tactical training in land warfare and technical training in the operation and care of organic weapons and equipment, before beginning amphibious training.

b. The Navy maintains amphibious training centers for army units. The troop training unit (TTU), an organization from a naval amphibious training center, is responsible for conducting amphibious training for army and marine corps units. The TTU provides special courses, conducts shore training, supervises order writing, and assists in shipboard training. Training facilities, equipment, and aids are provided by the staff of the unit being trained.

353. TRAINING MISSION

The RCT training mission is to prepare individuals, units, and staffs to perform their assigned functions in a coordinated amphibious assault landing. The training must develop individual and unit proficiency in the following procedures:

- a.* Embarkation of personnel, equipment, and supplies.
- b.* Shipboard routine, including physical conditioning of troops.
- c.* Debarkation and ship-to-shore movement according to prepared landing plans.
- d.* Aggressive assault against prepared beach positions followed by a sustained and coordinated attack to secure the beachhead.
- e.* Coordination of artillery, air, and naval gunfire support during all stages of the attack.
- f.* Logistical support of the attack, emphasizing operations of the shore party.

354. TRAINING PLAN

a. The first step in carrying out a training mission is to prepare a comprehensive training plan under TTU supervision. This plan is

based on an estimate of the training situation (FM 21-5). The factors in such an estimate include the—

- (1) Training mission.
- (2) Unit's training status.
- (3) Essential subjects and their sequence.
- (4) Allocation of training time.
- (5) Equipment and facilities available.
- (6) Personnel available as instructors.
- (7) Local conditions.
- (8) Organization for training.
- (9) Obstacles to training.

b. An integrated plan for progressive training is vital to the success of an amphibious training program. The division plan is issued in time to allow the RCT to prepare detailed training programs. See FM 60-5 for BLT training programs. The essential elements of the training plan include the—

- (1) Training mission.
- (2) Training objectives.
- (3) Phases of training.
- (4) Master schedule.
- (5) Pertinent details of subject matter to be covered and lists of approved text material.
- (6) Allocation of training facilities and aids.

355. PHASES OF AMPHIBIOUS TRAINING

Amphibious training is divided into three phases, which are accomplished progressively: shore-based training, elementary ship-based training, and advanced ship-based training. The intervals between these phases are kept as short as the situation and the availability of the facilities permit.

a. The *shore-based training* phase includes all training for amphibious operations that can be conducted while the units are based ashore. Indoctrination, individual, unit, and staff training, and specialist schools are included. All shore-based training, except the use of waterborne equipment, can be conducted in any training area by using mock-ups and other training facilities. When additional facilities such as boat pools, landing craft, and fire support vessels are available, elementary joint training with these craft is included in the shore-based training phase.

b. The *elementary ship-based training phase* includes training aboard ship for units, up to and including the RCT, in debarkation, ship-to-shore movement, and landing exercises.

c. The *advanced ship-based training phase* consists primarily of amphibious exercises which include problems designed to emphasize

the integration and teamwork of all landing force, naval, and air units. This phase is the culmination of all previous training and tests the proficiency of the participating units and their staffs. The functioning of logistical agencies and their integration into the common effort is stressed, as their proficiency can be satisfactorily measured only when engaged in their supporting functions.

Section II. ORGANIZATION FOR TRAINING

356. NAVAL ORGANIZATION FOR AMPHIBIOUS TRAINING

By joint agreement, the Navy is responsible for maintaining instructional centers for training Army, Navy, and Marine Corps units in the technique of amphibious warfare and for continuing to develop new and advanced techniques.

357. TRAINING ON SHORE

Shore training is normally conducted by a naval amphibious training command consisting of a commander and staff. The staff is organized along general staff lines and contains a chief of staff, N-1, N-2, N-3, and N-4. The duty of the staff is primarily that of planning and coordinating the efforts of the troop training unit, the naval amphibious training unit, and the amphibious base. The training units also conduct schools to train staffs on division and lower levels.

a. Troop Training Unit.

- (1) The TTU is a joint service organization, organized according to current tables of organization issued by the commandant of the Marine Corps. This unit consists of a commanding general, a general and special staff, and personnel to execute the assigned training mission.
- (2) The TTU conducts shore-based amphibious training for Army and Marine Corps units, either at an amphibious base, at the home station of the unit to be trained, or at any other suitable locality. It also operates special courses within regularly established amphibious schools, and takes part in the development and testing of experimental amphibious techniques and equipment.
- (3) At the amphibious base, the training program is designed to train one infantry division in successive echelons, each training echelon consisting of one RCT plus a detachment of divisional troops. This program includes a period of 29 training days per echelon. One echelon's training is completed before the next echelon's training begins. If necessary, all elements of one division may be accommodated simultaneously at the amphibious base, and training would be conducted as follows:

<i>Phase</i>	<i>Subject</i>	<i>Training days</i>
I	Amphibious indoctrination courses for all personnel-----	6
II	Specialist schools-----	15
III	Elementary landing exercises-----	3
IV	Advanced landing exercises-----	5
Total -----		29

b. Naval Amphibious Training Unit (NATU). This unit conducts training in technical naval subjects, including gunfire support, communication, landing craft control, intelligence, beach party operations, ponton techniques, and underwater demolition.

c. Naval Amphibious Base. The amphibious base provides logistical support for the amphibious training command. It provides and maintains training facilities, landing craft, and ships, and administers the ship personnel.

358. SHIP-BASED TRAINING

Ship-based training is conducted by a designated amphibious force or group commander. Vessels are assigned as needed to conduct the training.

359. ORGANIZATION OF THE RCT FOR TRAINING

When practicable, the RCT organization for training includes all attached liaison and communication personnel and all supporting units.

Section III. SHORE-BASED TRAINING

360. GENERAL

a. The shore-based training phase is normally supervised by TTU personnel and includes all amphibious training that can be conducted while the RCT is based ashore. This phase normally covers orientation and indoctrination of all personnel in the special requirements of amphibious operations, the conducting of amphibious specialist schools, and the training of individuals and units.

b. The division commander issues a directive outlining the general training plan. He provides and coordinates the use of facilities and training aids.

c. RCT's, supplemented by TTU personnel, conduct most of the training. For proper execution, shore-based training requires decentralization. The RCT commander prepares training programs based on the division plan. The BLT commanders prepare detailed training programs based on the RCT programs and company commanders prepare weekly training schedules based on the BLT programs.

361. INDOCTRINATION

a. Before training begins, all RCT personnel are thoroughly indoctrinated in the subjects of amphibious operations. The indoctrination program can be conducted in several ways. The TTU normally conducts the initial indoctrination course on division level. One or more representatives from units of the division attend the division course and, upon its completion, return to their units to conduct similar courses for the other officers of their units. Training conditions may require RCT's and BLT's to conduct their own indoctrination courses under TTU supervision.

b. The indoctrination course covers amphibious operations in enough detail to acquaint the personnel with all phases of amphibious operations and with the details of the training plan. Maximum use is made of training aids, such as films, film strips, and slides.

c. The course covers the general aspects of the following subjects as they relate to amphibious operations:

- (1) General orientations.
- (2) Organization and command relationships.
- (3) Characteristics of planning.
- (4) Intelligence.
- (5) Transport loading.
- (6) Ship-to-shore movement.
- (7) Logistics.
- (8) Shore parties.
- (9) Medical service.
- (10) Naval gunfire support.
- (11) Field artillery.
- (12) Air support.
- (13) Communication.
- (14) Training.

362. SPECIALIST SCHOOLS

Amphibious operations require service and supporting units to use special techniques. These operations differ from, and are often more complicated than, normal land warfare operations. For this reason, courses are conducted in amphibious techniques to insure an adequate and uniform standard of training and performance. Normally the TTU conducts all the specialist courses but the communication and medical. Some courses may be conducted by the division after instructors have attended specialist schools. Other courses attended by a large number of troops are decentralized to RCT's and BLT's. Division special staff officers assist in the instruction of lower units when training is decentralized.

a. The *embarkation officer course* trains group embarkation officers and their assistants in planning and supervising the embarkation of the division. Group embarkation officers and their assistants then instruct their units in the proper techniques and procedures.

b. The *naval gunfire course* trains key personnel in the capabilities, limitations, and conduct of naval gunfire support. Attendance is limited to naval gunfire spotters (field artillery observers), their communication personnel, and other RCT personnel authorized by the division commander.

c. The *amphibious intelligence course* trains key personnel in intelligence duties peculiar to amphibious operations.

d. The *communication course* trains communication personnel in the duties and functions of communication in an amphibious operation. The TTU usually supervises this instruction.

e. The *medical course* trains medical personnel in their duties and responsibilities when giving medical support to units engaged in amphibious operations. The division commander conducts this course under TTU supervision.

f. The *air support course* trains key personnel in the capabilities, limitations, and conduct of air support in an amphibious operation. Attendance is limited to TACP personnel and selected infantry and artillery officers.

g. The *driver's maintenance course (waterproofing)* trains selected RCT personnel in the technique of waterproofing and dewaterproofing vehicles. On completing this course, the students conduct similar instruction within their units.

363. STAFF TRAINING

a. Unit staffs are schooled in amphibious doctrine so that they can prepare their plans properly and assist in the preparation of joint plans. Staffs must have a working knowledge of the organization, tactics, and techniques of naval and air forces.

b. Staff training for amphibious operations is completed before unit training is started. When the RCT is ready to start unit training, the staffs prepare and supervise the training exercises. Command post exercises are an important part of staff training.

c. Staff instruction includes the preparation of—

- (1) Operation orders.
- (2) Administrative orders.
- (3) Embarkation orders.
- (4) Boat assignment tables.
- (5) Debarkation schedules.
- (6) Approach schedules.
- (7) Loading diagrams.

- (8) Intelligence plans.
- (9) Communication plans.
- (10) Medical plans.
- (11) Standing operating procedures.
- d. Additionally, staffs are given training in—
 - (1) Organization and integration of naval staffs.
 - (2) Naval gunfire plans.
 - (3) Artillery plans.
 - (4) Communications plans.
 - (5) Engineer plans.
 - (6) Air support plans.
 - (7) Shore party plans.
 - (8) Loading plans.
 - (9) Naval orders.

364. INDIVIDUAL TRAINING

Individual training for amphibious operations is completed during the shore-based training phase.

a. *Purpose.* Individual training prepares each individual to perform his role in amphibious operations.

b. *Scope.* Individual amphibious training includes the technique of embarkation, the requirements of life aboard ship, survival at sea, technique of debarkation, conduct during the ship-to-shore movement, and the method of assaulting the hostile beach.

c. *Conduct of Training.* Individual training may begin at the home station and may be concluded at a designated training center. The need for decentralization requires that this training be conducted by company officers and noncommissioned officers, and supervised by TTU, RCT, and BLT staff officers. As far as possible, specialist schools are conducted concurrently with the individual training so that everyone, including specialists, is available for unit training at the earliest practicable time.

d. *Training Program.* Individual training includes—

- (1) Naval customs and shipboard routine.
- (2) Shipboard maintenance of individual and organizational equipment.
- (3) Use of lowering lines.
- (4) Use of cargo nets.
- (5) Embarkation and arrangement of personnel and equipment in landing craft.
- (6) Boat discipline.
- (7) Debarkation from landing craft.
- (8) Passage of beach obstacles.
- (9) Characteristics of naval gunfire and close air support.

- (10) Transfer procedures.
- (11) Swimming, special survival methods, and use of life belts and rafts.
- (12) Operation of rubber boats.

e. Training Aids. Many training aids, some of simple design, are used during this phase of training. Many aids can be constructed easily by the using unit. Some of the aids used are—

- (1) Sand tables or terrain models.
- (2) Debarkation nets and platforms.
- (3) Beach or landing areas.
- (4) Docks or piers with debarkation platforms.
- (5) Landing craft, LVT's, and DUKW's.

365. UNIT TRAINING

Unit training includes all training necessary for the RCT to participate in ship-based landing exercises.

a. Purpose. This training prepares all units up to and including the RCT to perform their functions in the ship-based training phase.

b. Scope. Unit training includes instruction in embarkation, shipboard routine, ship-to-shore movement, and assault landing tactics and techniques.

c. Conduct of Training.

- (1) Unit training may begin at the home station and continue at an amphibious training center unless additional facilities such as landing craft and a beach area are available near the home station. Unit training is initially decentralized to the lowest echelon. Each unit is guided in its training by the mission and objectives assigned by the next higher commander.
- (2) Unit training of the boat team, platoon, company, BLT, and RCT includes exercises that emphasize—
 - (a) The organization of boat teams, boat waves, and boat groups.
 - (b) The formation and tactics of boat waves and groups.
 - (c) Landing tactics and techniques.
 - (d) The waterproofing of equipment.
 - (e) Unit debarkation according to the prepared boat assignment tables and debarkation schedules.
 - (f) Embarkation and debarkation.
 - (g) The conduct of the ship-to-shore movement according to prepared landing diagrams and approach schedules.
- (3) Training films and film strips showing all phases of amphibious operations are normally available. These are used to show shipboard routine, techniques of embarkation, and the ship-to-shore movement.

- (4) Models, including landing ships, landing craft, landing vehicles, transports, aircraft, and terrain, are also used.
- (5) Debarkation platforms may be constructed in the camp area and in the landing beach training area. Cargo nets hung from these platforms are used to train troops in the technique of debarkation. When a suitable training site is available, debarkation platforms are constructed on docks or piers so that landing craft and vehicles can be brought alongside. Troops debark into the landing craft and vehicles as if debarking from a transport.
- (6) Mock-ups of landing craft and vehicles are constructed for practicing the technique of debarking and the proper positioning of personnel and equipment.

Section IV. SHIP-BASED TRAINING

366. ELEMENTARY SHIP-BASED TRAINING

Elementary ship-based training of units up to and including the RCT is conducted immediately after shore-based training. The division is divided into embarkation groups so that all elements can participate.

a. Purpose. This phase of training perfects the elementary techniques of the ship-to-shore movement through the use of a progressive training program. Small units are trained and then integrated into larger units that finally emerge as RCT's prepared to execute their assigned missions. Throughout this phase, cooperation and mutual understanding among component arms and services of the joint force are stressed.

b. Scope. Elementary ship-based training is progressive and includes joint exercises of naval vessels and embarked troops in all phases of the ship-to-shore movement. It begins with exercises based on the attack transport and its embarked troops and ends with full-scale exercises of the transport division and its embarkation group.

c. Conduct of Training.

- (1) When loading plans and the conferences with the naval commanders are completed, all units are combat loaded. Enough equipment and supplies are loaded to insure realism.
- (2) After the RCT has embarked, shipboard emergency drills are conducted so that all men become familiar with their duties and shipboard routine. During the first few days, debarkation drills are conducted to stress prompt formation of boat teams below decks and their orderly movement to assigned debarkation stations.
- (3) Upon arrival of the transports in the designated training area, training is decentralized to individual transports.

Training of the embarked troops and transport crews covers—

- (a) Movement to debarkation stations and debarkation into landing craft.
- (b) Formation of boat waves.
- (c) Assembly at the rendezvous area.
- (d) Approach to line of departure.
- (e) Transfer from boats to LVT's.
- (f) Debarkation at the beach.
- (g) Reembarkation.

d. BLT Exercises. Each BLT executes at least three landings, including a night landing, for which tactical problems are prepared. Two of these landings are a part of an RCT exercise. Only those supplies that can be reloaded in the time allotted for the exercise are taken ashore. Casualties are simulated and evacuated to designated transports.

e. RCT Exercises.

- (1) Each RCT conducts a minimum of two landings; one is a night landing and the other is a full-scale landing involving the use of naval gunfire, close air support, and underwater demolition teams. Supplies are unloaded to provide suitable training for the shore party. In these exercises the entire embarkation group is landed, and the division commander coordinates the landing of troops not included in the RCT. The exercise lasts for several days and covers the period of transition from naval gunfire to shore-based artillery and from ship-based logistical and communication support to normal methods.
- (2) Immediately after each exercise, a critique is conducted for all participating elements. TTU personnel are assigned to observe the exercise and submit comments on errors noted in the application of principles and techniques. At least one free day is provided between landing exercises for critiques and for the revision of plans and orders for the following exercises.
- (3) Complete operation orders with annexes are prepared for all landing exercises involving tactical problems ashore. Arrangements are made to have aerial photographs and maps of landing areas available.
- (4) During the elementary joint training phase, opportunity is given all units to test and revise their SOP's for amphibious operations.

367. ADVANCED SHIP-BASED TRAINING

Advanced ship-based training consists essentially of amphibious exercises. Normally, the entire division takes part in this phase of train-

ing. Supporting air and naval units closely approximate the forces that would be assigned in an actual operation.

a. Purpose. Advanced ship-based training measures the success of all preliminary training, tests staff work, and integrates the functions of all arms and services.

b. Scope. Advanced ship-based training consists of amphibious exercises in which the RCT participates as part of a landing force together with supporting air and naval units. It includes advanced training in the ship-to-shore movement followed by a landing and an advance inland.

c. Planning. The first step in advanced ship-based training is the issuance of a preliminary directive or warning order for the exercise. This order indicates the mission, the training area, the forces involved, and the exercise schedule. Joint planning is essential in amphibious operations and is conducted at all levels. The exercise begins with planning on the division level. Information is provided to lower units as rapidly as circumstances permit so that they may prepare their plans. The various participating services make their plans concurrently. Coordination is effected by frequent interstaff conferences and by continuous liaison between parallel commands. Plans are checked during the exercises to detect errors and to provide a basis for improved planning procedures. Besides the normal critique of the exercises, a detailed evaluation is made of all previous planning for the benefit of the commanders and staffs who prepared them.

d. Execution. The following steps are normally followed in the execution of advanced ship-based exercises, but they may be modified or varied to conform to local conditions or other factors:

- (1) Concentration of forces at embarkation or marshalling areas.
- (2) Embarkation according to plan.
- (3) Movement to the landing area, exercises at sea, and shipboard drills and training.
- (4) Preliminary bombardment by air and naval units.
- (5) Ship-to-shore exercise followed by critique.
- (6) Landing and advance inland followed by critique.
- (7) Re-embarkation and return to base.
- (8) Critique for major commanders and staffs.

e. Concentration of Forces and Embarkation. Elements of the landing force are concentrated and embarked according to plans and schedules that have been prepared in coordination with the naval elements involved. When possible, the equipment and supplies taken by the landing force are those required in an actual operation.

f. Movement to the Training Area. During the movement from the point of embarkation to the landing (training) area, the embarked troops—

- (1) Carry out normal shipboard routine and emergency drills.

- (2) Maintain equipment.
 - (3) Conduct limited training.
 - (4) Conduct debarkation drills.
 - (5) Receive thorough briefings on the exercise.
- g. Ship-to-Shore Exercise.*
- (1) The ship-to-shore exercise is the first major element of advanced ship-based training. During this exercise emphasis is placed on—
 - (a) Debarking from the transport and landing ships.
 - (b) Forming and controlling boat waves during the ship-to-shore movement.
 - (c) The timing of air and naval gunfire support.
 - (d) Communication.
 - (e) The beach assault technique.
 - (2) After the landing, the troops proceed inland only far enough to clear the beaches for succeeding waves. After the final wave has landed, troops and equipment are reembarked. Critiques are held to review the ship-to-shore exercises, correct errors, and emphasize the lessons learned. A minimum of two days is provided between the ship-to-shore exercise and the main landings for—
 - (a) Critiques.
 - (b) Final revision of plans for the main landing.
 - (c) Briefing all troops in the details of the revised plan.
 - (d) Checking and cleaning equipment.

h. The Landing and Advance Inland. The main landing and the advance inland is the final part of advanced ship-based training. Emphasis is placed on the integration and coordination of all participating elements and on the organization for logistical support. Enough supplies and equipment are unloaded and established in dumps ashore to thoroughly test the shore party. Casualties are simulated and evacuated through shore party agencies to designated ships. The exercise is continued until the landing force has seized the beachhead. Personnel, equipment, and supplies are then reembarked.

i. Critique. The critique is held after the exercise to—

- (1) Review and evaluate the exercise.
- (2) Point out the errors in execution and describe the methods of correcting them.
- (3) Improve future performances.

Section V. REHEARSALS

368. GENERAL

A rehearsal is an amphibious exercise that is executed according to the actual plans prepared for a specific combat mission. Its pur-

pose is to insure familiarity with, and test the adequacy of, the details of the tactical and administrative plans; and to correct errors and insufficiencies before the actual execution of the assigned mission. Although the rehearsal follows the third phase of amphibious training, it is not considered a fourth training phase. Rehearsals are conducted only to prepare for a specific mission.

369. REHEARSAL AREA

The area selected for a rehearsal must resemble the objective area as closely as possible, particularly the landing beaches and the terrain immediately behind them. Any major obstacles to landing and unloading that are known to exist in the objective area are duplicated in the rehearsal area. Other considerations are the time available for rehearsal, security, the location of the rehearsal with respect to the objective and embarkation points, and hydrographic and climatic conditions. Areas where live ammunition can be fired are highly desirable. Maneuver ashore, while important, is not normally the primary purpose of the rehearsal. The attack force commander, in coordination with the landing force commander, generally makes the final selection of the rehearsal area.

370. REHEARSAL ORDER

Because of the difference in terrain, hydrographic and weather conditions, and other factors, the operation plan may require some modification to meet the conditions in the rehearsal area. In that case, a separate rehearsal order is issued embodying the salient features of the actual operation order, but written to meet local conditions in the rehearsal area. If the rehearsal order tests the principal features of the actual operation realistically, it serves its primary purpose. Changes in the actual supporting plans and annexes are kept to a minimum in rehearsals.

APPENDIX I

REFERENCES

SR 310-20 Series	Military Publications.
SR 320-5-1	Dictionary of United States Army Terms.
SR 320-50-1	Authorized Abbreviations.
FM 3-5	Characteristics and Employment of Ground Chemical Munitions.
FM 3-6	Employment and Characteristics of Air Chemical Munitions.
FM 6-20	Field Artillery Tactics and Technique.
FM 6-101	Tactics and Technique Battalion and Battery Motorized.
FM 7-20	Infantry Battalion.
FM 7-24	Communication in Infantry and Airborne Divisions.
FM 7-30	Service and Medical Companies Infantry Regiment.
FM 7-40	Rifle Regiment.
FM 17-32	Tank Platoon and Tank Company.
FM 17-34	Amphibious Tank and Tractor Battalions.
FM 17-100	Armored Division and Combat Command.
FM 21-5	Military Training.
FM 21-8	Military Training Aids.
FM 21-40	Defense Against Chemical Attack.
FM 30-5	Military Intelligence—Combat Intelligence.
FM 31-35	Air-Ground Operations.
FM 31-50	Attack on a Fortified Position and Combat in Towns.
FM 60-5	Amphibious Operations, Battalion in Assault Landings.
FM 100-10	Administration.
FM 101-5	Staff Organization and Procedure.
TM 3-220	Decontamination.

TM 5-240
TM 5-246
TM 9-2853

TM 38-414
JANAP 144 .

Aerial Photography.
Interpretation of Aerial Photographs.
Preparation of Ordnance Material for
 Deep Water Fording.
Army Marking Directive.
Joint Amphibious Communications.

APPENDIX II

RCT OPERATION ORDER

1. PREPARATION OF THE OPERATION ORDER

a. The RCT commander is responsible for the preparation and issuance of the RCT operation order. RCT staff officers, liaison officers of supporting arms, and commanders of attached elements are responsible for the preparation of pertinent portions of the order as directed by the RCT commander.

b. The division operation order is in much greater detail for amphibious operations than for normal land operations. The order may direct the scheme of maneuver of the RCT to a considerable degree, thereby limiting the courses of action open to the RCT commander. The RCT commander's order also is issued in greater detail to assure the maximum coordination between adjacent BLT's and supporting fires during the initial assault on the beach defenses and the key terrain features. When the situation dictates, the RCT operation order may direct in detail the scheme of maneuver of lower elements, including the initial objectives of the assault companies and the initial disposition of supporting weapons ashore.

c. The planning and preparation of the amphibious operation order are often carried on concurrently at division, RCT, and BLT levels. The RCT commander and his staff maintain close liaison with division and naval elements whose plans and orders directly affect the operation of the RCT.

d. This concurrent planning and preparation of orders causes frequent changes to be made during the preparation of the RCT operation plan and order. The RCT operation order is prepared at the earliest possible date after over-all plans become firm. Normally there will not be a clear line between the operation plan and the operation order at the RCT level. Operation planning will be accomplished through the preparation of the draft operation order; the operation order draft, until it is approved by the commander, will be the operation plan. When the plan is approved and subsequently issued, it becomes the operation order.

2. FORM AND CONTENT OF THE RCT OPERATION ORDER

a. Classification. The classification of an operation order is prescribed in AR 380-5. The prescribed classification is placed at the top and bottom of each page.

b. Heading. The heading contains the issuing headquarters; the place, date, and hour of issue; the title and number of the order; and references to the maps used in the order.

- (1) The issuing headquarters is the official designation of the unit; for example, RCT 1. When security requires, a code name is used.
- (2) Operation orders for a unit are numbered consecutively throughout the war.
- (3) The map references show the country, the scale, the name of the sheets, the year of edition (if necessary), and other details necessary to identify the maps.

c. Body. The body of the RCT operation order consists of a statement of the task organization, which is a list of the major units and their commanders, and five numbered paragraphs. If the task organization is too lengthy to be included in the body, it is prepared and issued as an annex to the order. When this is done, the heading *Task Organization* is followed by a reference to this annex. If the task organization is omitted, attachments are listed under the proper subparagraphs of paragraph 3.

- (1) *Paragraph 1* contains information of the enemy and of friendly units. It contains information only, and no part of the plan or instructions of the RCT commander. Paragraph 1 is usually subdivided into subparagraphs *a* and *b*.
 - (a) *Subparagraph a* contains information of the enemy including strengths, disposition, location, movements, identifications, and capabilities. In amphibious orders, this subparagraph usually refers to the intelligence annex, where all enemy information is found.
 - (b) *Subparagraph b* contains the mission of the division and information of friendly and supporting units (not attached units). In amphibious orders, this subparagraph may refer to such annexes as naval gunfire, air, and artillery.
- (2) *Paragraph 2* is usually divided into subparagraphs *a* and *b*.
 - (a) *Subparagraph a* contains a statement of the RCT mission. This statement may be supplemented by reference to an overlay or operation map.
 - (b) *Subparagraph b* contains the details of coordination; for example, the formation, the time of landing (referred to in terms of H-hour and D-day), and the direction of attack.

This paragraph may simply refer to an overlay, or an operation map, and the consolidated landing diagram, if these convey the necessary information.

- (3) *Paragraph 3* assigns tasks to each lower unit. In this paragraph each unit is assigned its task in a separate lettered subparagraph. In RCT operation orders, the first subparagraphs assign missions to the assault BLT's. These are followed by subparagraphs assigning missions to the other RCT elements in the order of their importance, followed by a subparagraph for the reserve BLT and any other units in reserve. The last subparagraph, lettered *x*, contains all tactical instructions that apply to two or more units and that do not properly appear elsewhere in the order. Although the essential elements of information (EEI) may be included in the intelligence annex, they may also appear in subparagraph *x* for emphasis.
- (4) *Paragraph 4* contains administrative and logistical instructions for the RCT. In amphibious operations, the administrative and logistical details are usually so voluminous that a separate administrative order and an embarkation order may be issued. When an administrative order is not issued, paragraph 4 contains all necessary information pertaining to transportation, rations, water, ammunition, and the location and functioning of service facilities.
- (5) *Paragraph 5* of the operation order contains communication instructions, usually arranged in lettered subparagraphs *a*, *b*, and *c*.
 - (a) *Subparagraph a* refers to the signal annex and the effective index to the SOI. It may also include tactical or other restrictions on the use of communication means, and the designation of the time zone to be used in orders and communication in the objective area.
 - (b) *Subparagraph b* announces the command post locations of the issuing unit and each of the principal lower units; it gives the axis of signal communication.
 - (c) *Subparagraph c* prescribes the location and time of opening of advance message centers, control points, and other places where messages may be sent.

d. Ending. The ending of the RCT operation order contains the signature of the RCT commander (or RCT executive officer in the name of the RCT commander), a list of annexes, the distribution, and, on all copies, the authentication.

- (1) Annexes are listed by number and title in the sequence that they are referred to in the body of the order.

- (2) The distribution shows the units or officers to whom the order is issued and the number of copies distributed to each.
- (3) The authentication consists of the word "Official" and the signature and the title of the RCT S3.

3. ANNEXES

Annexes accompany the RCT operation order to preserve brevity, clarity, and simplicity in the body of the order. Annexes amplify the order when the information contained has only limited application or is of a technical nature. The number and content of the annexes vary considerably with the nature of the operation. The annexes normally prepared to accompany the RCT operation order are: the operation map or overlay; intelligence; landing schedule; consolidated landing diagram; naval gunfire support; air support; artillery; signal; and alternate plan.

a. Operation Map (Overlay). This annex shows on a map or overlay the scheme of maneuver ashore, zone of action, objectives, beachhead line, and any other instructions or information that can be shown graphically.

b. Intelligence Annex.

- (1) This annex normally includes pertinent portions of the intelligence annex from the division operation order. It also may include the RCT commander's EEI. It consolidates the instructions and information from higher commanders into concise statements pertinent to all RCT personnel. The information that affects the operation of the RCT, or any part of the RCT, is covered in detail.
- (2) Maps, charts, diagrams of enemy installations, photographs, and extracts of reconnaissance reports may be appended to the intelligence annex. Some items that may be included are—
 - (a) A summary of the enemy intelligence, including information on enemy ground, air, and naval forces. This summary is preceded by a general over-all picture of the enemy situation. Situation maps and overlays may be used and appended to the annex. All estimated enemy capabilities that can affect the RCT are included.
 - (b) The essential elements of information that may be included are: the beach defenses; hydrography of the beach approaches; location and nature of obstacles ashore; location, strength, identity, and mobility of enemy forces ashore; and the location of mine fields.
 - (c) Reconnaissance, including instructions to unit reconnaissance elements and information regarding the planned reconnaissance of higher commanders; air reconnaissance

plans and the method of requesting air reconnaissance; and instructions for the establishment and operation of observation posts.

- (d) Communication intelligence; for example, the operation of monitoring units.
- (e) Instructions for the handling of prisoners of war and captured documents.
- (f) Information on the availability and distribution of maps and photographs for the operation.
- (g) Counterintelligence instructions, including plans for handling classified documents; use of camouflage, censorship, countersigns; the operation of special counterintelligence agencies, if attached; and public relations instructions.
- (h) Reports required, including the method of reporting.
- (i) Tide tables, sunrise and sunset tables, moonrise and moonset tables, weather forecasts, terrain evaluations, and G2 estimates.

c. *Landing Schedule* (par. 177).

d. *Consolidated Landing Diagram* (par. 181).

e. *Naval Gunfire Support Annex*. This annex is an extract of the naval gunfire annex issued by division. It contains all the gunfire information and instructions that influence in any way the actions of the RCT. Some of the details normally included are—

- (1) Organization of naval units for naval gunfire support.
- (2) Designations of ship or ships in direct support of the RCT, including—
 - (a) Amounts of ammunition available for shore bombardment.
 - (b) Types of available ammunition.
 - (c) Smoke and pyrotechnic signals to be used for naval gunfire control.
- (3) Operation of the shore fire control parties attached to the RCT.
- (4) Appendixes, including charts and diagrams showing stations of the fire support ships at sea, target areas where fires will be delivered, planned scheduled fires, and target priorities (pars. 207–210).

f. *Air Support Annex*. This annex normally includes—

- (1) The organization of supporting air units.
- (2) The prearranged air missions including the time, number of planes, and target areas. Instructions for the employment of the tactical air control parties attached to the RCT.
- (3) Information on the method of securing air support.
- (4) Any special instructions regarding direct air support.

- (5) Reference to special signal and communication details of air-ground communication not covered in the signal annex (pars. 233-236).

g. Artillery Annex. This annex shows the over-all plan for the employment of all field artillery and antiaircraft artillery that may support the RCT. It normally includes—

- (1) The organization of the artillery for the operation.
- (2) The landing plan for artillery units.
- (3) The coordination between artillery and naval gunfire support.
- (4) Special instructions for FO parties.
- (5) Instructions on survey, registrations, fire control, priorities of fire, and restrictions on firing.
- (6) Appendixes showing planned concentrations, proposed position areas, and command installations.
- (7) Missions and deployment of AAA units.
- (8) The attachment of AAA units to the RCT and BLT's.
- (9) Restrictions on AAA day and night firing.
- (10) Instructions on use of AAA to reinforce field artillery on ground targets.
- (11) Special instructions regarding fire while afloat (pars. 246-247).

h. Signal Annex. This annex includes the information and instructions pertinent to the establishment and functioning of all signal communication affecting the operation of the RCT. Details normally include—

- (1) Establishment and functioning of all radio and wire nets.
- (2) Use of pyrotechnics and pyrotechnic codes.
- (3) Authentication procedures.
- (4) Use of all codes and ciphers.
- (5) Radio silence and signal security measures.
- (6) Supply and replacement procedures for signal equipment.
- (7) Reference to all SOI's in effect for the operation.
- (8) Location and operation of any special signal installations ashore or afloat.
- (9) Appendixes including signal charts, diagrams, and maps for all phases of the operation.

i. Alternate Plan Annex. See paragraph 36 for a discussion of alternate plans.

APPENDIX III

ADMINISTRATIVE ORDERS

CLASSIFICATION

Issuing Headquarters
Place of Issue
Date and Time

Administrative Order _____

Maps: (Those needed for understanding the plan.)

References: (Overlays, Memorandums, and SOP's.)

(Orders or extracts of orders from higher headquarters may be included in the RCT administrative order. Any of the following subparagraphs that are not pertinent are omitted. Any of the subjects listed in the order may be covered in annexes when desirable.)

1. **SUPPLY.**—In this paragraph consideration is given to all classes of supply. Each subparagraph contains instruction on the locations of supply installations, time schedules for pick-up and delivery, breakdown and issue, priorities, excess, salvage, captured matériel, procurement, packaging and preparation of supplies for debarkation, special supply procedures and controls, and emergency supply, including resupply by air. Adjustments of basic loads, amounts and types to be carried by individuals and units, and amounts to be included in each echelon are indicated in the subparagraph pertaining to each class of supply. Use the following headings to organize the contents:

- a. Class I.*
- b. Class II.*
- c. Class III.*
- d. Class IV.*
- e. Class V.*
- f. Maps.*
- g. Water.*
- h. Special.*
- i. Captured matériel.*
- j. Salvage.*
- k. Excess.*

2. **EVACUATION AND HOSPITALIZATION.**—This paragraph covers instructions on routes of evacuation, battalion aid stations,

CLASSIFICATION

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collecting stations, clearing stations, special evacuation procedures peculiar to amphibious operations (shore-to-ship), reports, use of litter bearers and ambulances, and medical service for separate companies and attached units. Medical service afloat and sanitary instructions for the command may be included in this paragraph.

3. **TRANSPORTATION.**—This paragraph lists types and number of vehicles to be included in assault and follow-up convoys, priorities for unloading vehicles, supply routes, traffic control, restrictions on movement and use of lights, control points, and time and place of release of motor transport under regimental control.
4. **SERVICES.**—This paragraph contains information on the locations of regimental field train bivouac, regimental maintenance section, and installations of attached or supporting service units as required. Information is also included on decontamination, impregnation, maintenance, construction, waterproofing, dewaterproofing, bathing, laundry, and personal effects. Special missions not covered in other paragraphs may be assigned to service units in this paragraph.
5. **PERSONNEL.**—This paragraph contains information concerning any of the appropriate personnel functions. Only those subparagraphs needed are used in each order. If a particular subparagraph is not applicable, the subparagraph title is omitted and the remaining subparagraphs are relettered in sequence. Information too lengthy to be placed in the body of the order is placed in annexes, and a reference to these annexes is made in pertinent subparagraphs of the order. The personnel functions normally included in the administrative order are—
 - a. *Records and reports.*
 - b. *Prisoners of war.*
 - c. *Burials and graves registration.*
 - d. *Morale.*
 - e. *Civil affairs—military government.*
6. **MISCELLANEOUS.**—This paragraph includes all instructions and information that cannot be appropriately included in other paragraphs; for example, boundaries, protection, rear echelon headquarters, and special reports.

(Commander)

Annexes
Distribution
Authentication

CLASSIFICATION

APPENDIX IV

A FORM FOR DIVISION EMBARKATION PLAN OR ORDER

CLASSIFICATION

Issuing headquarters

Place of issue

Date and time

Embarkation Plan (or Order) _____

Maps: (Those needed for understanding the plan.)

References: (SOP's, operation order, administrative order, and other written material needed for an understanding of the plan.)

1. ORGANIZATION FOR EMBARKATION.

- a.* Troop list of each embarkation group. (May be issued in the form of an annex as illustrated in fig. 17.)
- b.* Assignment of each embarkation group to shipping, schedule showing berthing of ships, date and hour loading will begin, and date and hour embarkation will be completed by each embarkation group. Other information pertinent to the embarkation schedule may be included. (May be issued in the form of an annex as illustrated in fig. 17.)
- c.* Advance parties.
 - (1) Composition.
 - (2) Functions.
 - (3) Movement to embarkation point. (Reference may be made to appropriate SOP.)

2. SUPPLIES AND EQUIPMENT TO BE EMBARKED.

- a.* Amounts and types of supplies and equipment to be embarked.
- b.* Preparation of supplies and equipment for embarkation. (Reference may be made to appropriate SOP.)
- c.* Allocation of division supplies and equipment to vessels or to embarkation groups.
- d.* Movement of supplies and equipment to cargo assembly areas. (Information in this paragraph may be issued in the form of an annex with appendixes, if desirable.)

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CLASSIFICATION

3. EMBARKATION POINTS AND CARGO ASSEMBLY AREAS.

- a.* Assignment of embarkation points and cargo assembly areas for loading. (May be in form of map, sketch, or overlay, and issued as an annex.)
- b.* Preparation of embarkation points and cargo assembly areas for loading, including the construction or improvement of exits and facilities in the embarkation area.
- c.* Assignment of mechanical loading devices, such as finger lift trucks, cranes, roller conveyers, and warehouse pallets.

4. CONTROL.

- a.* Establishment and functions of embarkation control office. (Functions may be covered in SOP.)
- b.* Traffic circulation and control system in the embarkation area and between embarkation area and base camp.
- c.* Establishment of security posts for the prevention of fire, sabotage, and pilferage in cargo assembly and dock areas.
- d.* Communications for embarkation. (Reference may be made to appropriate SOP.)

5. MOVEMENT AND EMBARKATION OF PERSONNEL.

- a.* Schedule and method of movement from base camp.
- b.* Schedule and instructions for embarkation.

6. MISCELLANEOUS.

- a.* Embarkation responsibilities and tasks, including the responsibilities of embarkation group commanders, and the tasks of such officers as supply officer, motor transport officer, and embarkation officer.
- b.* Special loading instructions, such as the stowage of certain type cargo and the handling of fragile or dangerous items.
- c.* Miscellaneous instructions not covered elsewhere.

(Commander)

Annexes: 1 – Organization of Embarkation Groups and Assignment of Shipping.

2 – Loading Schedule.

3 – Supplies and Equipment to be Embarked.

4 – Embarkation Points and Cargo Assembly Areas.

(Other annexes may be added as necessary.)

Distribution

Authentication

CLASSIFICATION

GLOSSARY

1. DEFINITIONS

Amphibious assault—That part of an amphibious operation starting with the arrival of the attack force in the landing area and ending when the assault troops have established a beachhead ashore.

Amphibious forces—1. The ground, sea, and air forces equipped and trained for amphibious operations. 2. Permanent naval organizations established for planning, training, preparing, and conducting landing operations.

Amphibious troops—All the troops of all services assigned to a joint amphibious task force for operations ashore, including the landing force, garrison, and base troops.

Beach, colored—Shore line of a landing area assigned for the assault to one regimental combat team. Each RCT beach is given a color designation, and BLT subdivisions are numbered left to right from seaward.

Beachhead line (BHL)—An objective which fixes the limits of a beachhead; a main line of resistance based, if practicable, on terrain features that can be defended against enemy counter-attack before the advance out of the beachhead.

Beachmaster—The naval officer in command of the naval beachmaster unit.

Billet—An assignment of quarters and duties aboard a naval ship.

Boat pool—Additional boats available to transports to aid or replace boats that become inoperative before or during an amphibious operation.

Broach—To tend to be thrown broadside on the surface or in a seaway. Often currents flowing parallel to a shore line have this effect on landing craft causing them to land broadside to the beach.

Brodie launching device—An overhead landing wire, erected ashore or aboard ship, for launching and recovering aircraft specially equipped for use with this device.

Cargo and loading analysis—A form prepared from the consolidated unit personnel and tonnage table of a landing force ele-

ment. The form lists all cargo by organization, number of containers, type of equipment or supplies, weight, cubic measure, and where stowed. Also called a *cargo list*.

Cargo ship, attack (AKA)—A naval cargo vessel capable of combat unit loading.

Close support fire—Fire to support units ashore. It is placed on enemy troops, weapons, or positions whose proximity presents the most immediate and serious threat to the supported units. Close support vessels may be light cruisers, destroyers, gunboats, LSMR's, LVT(A)'s, or other support landing craft.

Commander, landing force—Commander of the task organization of ground troops equipped and trained to carry out an amphibious assault landing.

Condition 1A—That condition of battle readiness on vessels carrying troops or matériel for an amphibious landing when all stations are fully manned for debarkation.

Control group—A naval task organization consisting of personnel, vessels, craft, boats, and the necessary communication facilities to control the ship-to-shore movement.

Control officer—A naval officer, designated by the attack force commander, charged with over-all supervision of the ship-to-shore movement, may be an officer furnished by the amphibious support brigade.

Control vessel—A vessel, craft, or boat designated to guide or control the movement of waterborne traffic to and from the beach. See primary control vessel, secondary control vessel, and special control vessel.

Convoy loading—The loading of troops together with their equipment, and supplies on vessels in the same convoy but not necessarily on the same ship.

Davit loading—See rail loading.

Deadweight ton—See tonnage.

Deck loading—Cargo loaded on the open deck or on the hatch covers of vessels.

Deep support fire—Naval gunfire on inland shore targets to support the operation as a whole. The gunfire is usually provided by battleships, heavy cruisers, and light cruisers.

Division shore party—A shore party organized to support an assault infantry division in an amphibious operation. Its composition may be based on the engineer amphibious support regiment.

DUKW control point—A point located on or near beach exists to control the shuttle movement of amphibious trucks between ships and transfer points on shore.

DUKW-truck transfer point—A beach installation consisting of revolving cranes at which sling loads are transferred from amphibious trucks into trucks for further movement.

Embarkation officer—The troop officer designated to plan and supervise the loading and unloading of troops, equipment, and supplies. Each unit from division down to the BLT and each team to be embarked on a single ship has an assigned embarkation officer.

Fire support group (FSG)—Basic naval unit for the delivery of naval gunfire support.

Flagship—Headquarters ship of the amphibious force commander, from which naval, landing force, and air commanders exercise control of a landing operation. See AGC.

Floating dump—A dump of critical supplies held on boats, barges, or landing vehicles established afloat in the vicinity of a control vessel for quick dispatch to assault troops ashore. Also called *offshore dump*.

Garrison force—All units assigned to a base for defense, development, operation, and maintenance of facilities.

Gross ton—See tonnage.

Heavy lift cargo—All cargo packages, other than pallets, weighing more than 800 pounds or occupying more than 100 cubic feet (definition for amphibious operations only).

Joint communication center—A communication center established for joint use of the armed forces.

Landing craft (LC)—Craft that are especially designed for beaching, unloading or loading, and retracting from the beach. The term is generally applied to nonocean-going vessels of less than 200 feet in length designed for landing operations.

Landing craft availability table—A tabulation of all landing craft available to transport troops and matériel ashore. The transport group (or squadron) commander prepares and submits it to the landing force commander for planning purposes.

Landing schedule—A schedule that shows the place, hour, and priorities of landing of assault units. It also coordinates the movements of landing craft to the beach with the planned supporting naval and air bombardment missions.

Line of transfer—See transfer area (line).

Loading analysis—See cargo and loading analysis.

Loading point—Any location where ships or landing vessels are loaded with personnel, supplies, and equipment.

Main landing—The landing on which the ultimate success of the operation depends. It envisages the securing of a beach-head where assault forces can assume the offensive and continue operations inland against an active enemy.

- Marker vessel*—A vessel that takes accurate station at a designated control point for the purpose of controlling vessels in the ship-to-shore movement.
- Mine warfare group*—Task unit of a joint attack force assigned the mission of laying and sweeping mines in the objective area. Mine warfare group elements may be attached to the advance force.
- Naval gunfire liaison officer (NGLO)*—The naval officer in command of the shore fire control party.
- Naval gunfire officer (NGFO)*—An officer on the staff of a division or higher landing force unit whose duties are to plan naval gunfire support of amphibious operations.
- Naval gunfire support area*—An appropriate station and maneuver area assigned to fire support ships from which they deliver naval gunfire support of a landing operation.
- Naval platoon*—Naval unit, commanded by the beachmaster, assigned to a battalion shore party. The unit is often called the *beach party*.
- Officer in tactical command (OTC)*—In naval usage, the officer charged with tactical control of a formation. He is designated by proper authority to assume tactical command or, in the absence of such designation, he is the senior line officer present.
- Offshore dump*—See floating dump.
- Organizational loading*—Troops with their equipment and supplies embarked on the same ship but without regard to the prerequisites of a tactical debarkation.
- Pallet*—A portable platform, usually four by six feet, sometimes mounted on sled or toboggan runners upon which materials are placed for convenient stowage and handling.
- Patrol torpedo boat (PT Boat)*—A high speed motorboat mounting 2 or 4 torpedo tubes, antiaircraft and machine guns, and equipped with depth charges and smoke making apparatus. Used for coastal patrol and convoy.
- Ponton, N. L.*—Navy lightered ponton; cube shaped, sheet steel, air-tight cell from which ponton barges and causeways are assembled when required.
- Primary control vessel*—Vessel used by the senior naval officer in control of landing craft for a transport squadron or transport division.
- Profile loading plan*—A profile view of a loading vessel with the itemized list of matériel stowed in the holds indicated in the proper hold spaces. See stowage diagram.
- Reconnaissance group*—A task organization of the attack force designated to reconnoiter landing areas before D-day. They may also do such tasks as locating enemy naval forces, locating

beaches, establishing aids to navigation, clearing mine fields, selecting suitable targets for naval gunfire, and clearing beach approaches of underwater obstacles.

Regimental shore party—The element of a division shore party which supports a regimental combat team. When the RCT lands separately or at a location where it is not practicable to provide support from the division beach support area, a regimental shore party may be formed from an engineer shore company with necessary attachments.

Reserve force—A task organization of a joint amphibious task force consisting of the ships carrying the reserve troops, usually formed into a landing force that can land according to the general scheme of maneuver or as the tactical situation dictates.

Reserve supplies—Supplies accumulated in excess of immediate needs to insure continuity of an adequate supply.

Beach reserves—An accumulation of supplies of all classes established in dumps on the beach; normally 5–10 days supply of all classes.

Individual reserves—The supplies carried on the soldier, animal, or vehicle for his (or its) individual use. This usually includes the combat load of ammunition for all weapons in the BLT; usually one or two days supply of all classes.

Initial reserves—Those supplies normally unloaded immediately following the assault waves; usually enough to begin and sustain combat until higher supply installations are established; usually 3–5 days supply of all classes.

Rhino barge—Barge assembled from cube shaped, sheet steel, air tight pontons.

S-day—Sailing date for a scheduled operation.

Salvage group—A naval task organization designed and equipped to rescue personnel and to salvage equipment and matériel.

Screening group—A defensive unit of naval vessels employed to protect the attack force. It includes antisubmarine vessels and picket boats located seaward from the transport and fire support areas.

Secondary control vessel—Vessels used by naval boat group and wave commanders, and wave guide officers.

Selective loading—Loading of supplies and equipment in cargo vessels so that specific items can be unloaded on call.

Ship's platoon—Personnel furnished by the *Army* to handle matériel and equipment being loaded on or unloaded from assault ships. Their function is essentially that of hatch crews.

Special control vessel—A vessel used by corps and division commanders, boat flotilla commanders, senior beachmasters, and division shore party commanders.

Stores—In naval usage, this term is sometimes used instead of the term *supplies* to denote any article or commodity used by a naval vessel or station; for example, equipage, consumable supplies, clothing, petroleum products, ammunition, and medical supplies.

Stowage diagram—A schematic drawing of each hatch level showing stowage space for cargo. It may include over-all dimensions, and indicate boom capacity, stanchions, and minimum clearance.

Support group—A task group of naval vessels and craft assigned to furnish naval gunfire support in an amphibious operation. Usually there is one support group for each attack force. The support group may consist of two or more support units.

Supporting arms coordination center (SACC)—An organization having the same functions as the FSAC, but located aboard ship and remaining afloat.

Tactical air coordinator (TACA)—An air officer who coordinates, from an airplane, the action of combat aircraft engaged in close support of ground or sea forces.

Ton—A unit of volume or weight. In volume—measurement ton—40 cubic feet; gross ton—100 cubic feet. In weight—short ton—2000 pounds; long ton (weight ton)—2240 pounds; metric ton—2205 pounds (1000 kilograms).

Tonnage—An expression of cubic content or weight used to indicate the aggregate of tons shipped, carried, handled, or mined; also to indicate a ship's weight, size, and carrying capacity.

Deadweight cargo tonnage—The cargo carrying capacity, expressed in long tons. It is the part of the deadweight tonnage of the vessel that remains after deducting the weight of fuel, water, stores, dunnage, and other voyage items. Also known as *cargo capacity tonnage*.

Deadweight tonnage—The carrying capacity of a ship, expressed in long tons. It is the difference between displacement tonnage loaded and displacement tonnage light. Light—total weight of the ship to exclude the weight of cargo, passengers, fuel, water, stores, and dunnage. Loaded—total weight including all those items listed above.

Displacement tonnage—The weight of the ship expressed in long tons, either light or loaded.

Gross tonnage—Total internal cubic capacity of a ship expressed in tons of 100 cubic feet capacity.

Transfer line—A line on the water at which the transfer of troops and supplies from landing craft to amphibious vehicles is made.

Its location may be arbitrary, or may be dictated by the existence of reefs beyond which landing craft cannot navigate.

Vessel—Any type of water craft larger than a rowboat.

2. ABBREVIATIONS

AAA AW—Antiaircraft artillery automatic weapons.

AAOC—Antiaircraft operations center.

AAS—Artillery-air-spot (net).

AGC—Naval symbol for an amphibious flagship (headquarters ship).

AH—Naval symbol for a hospital ship.

AK—Naval symbol for a cargo ship.

AKA—Naval symbol for a cargo ship, attack.

AMTANK—An amphibious tank that can operate both on land and in water. Landing vehicle, tracked, armored (LVT(A)) is current terminology.

AMTRAC—An amphibious tractor used for the movement of troops and cargo from ship to shore in the assault phase of amphibious operations, or for limited movement of troops and cargo over land or water. Landing vehicle, tracked (LVT), is current terminology.

AP—Naval symbol for a troop transport.

APA—Naval symbol for attack transport; a vessel capable of combat unit loading and which is capable of transporting the bulk of an assault battalion landing team.

APD—Naval symbol for a destroyer-type high-speed transport.

BB—Naval symbol for battleship.

BHL—Beachhead line.

BMNT—Beginning morning nautical twilight.

BMR—Bomber.

CA—Naval symbol for heavy cruiser.

CAP—Combat air patrol.

CL—Naval symbol for light cruiser.

COMLANFOR—Commander, landing force.

COMNAVFOR—Commander, naval force.

COMTRANSDIV—Commander, transport division.

COMTRANSGROUP—Commander, transport group.

COMTRANSRON—Commander, transport squadron.

CV—Naval symbol for aircraft carrier.

CVE—Naval symbol for escort aircraft carrier built on a merchant ship hull.

CVL—Naval symbol for a light aircraft carrier built on a light cruiser hull.

DGP—DUKW control point.

DD—Naval symbol for destroyer.

DDE—Naval symbol for destroyer escort.

DUKW—A 2½-ton, 6 x 6 truck, capable of operating on both land and water.
FAC—Forward air controller.
FSCC—Fire support coordination center.
FSG—Fire support group.
HFF-(Radio)—High frequency.
LC—Landing craft.
LCI—Landing craft, infantry.
LCM—Landing craft, mechanized.
LCP(R)—Landing craft, personnel (ramped).
LCS—Landing craft, support.
LCVP—Landing craft, vehicle, personnel.
LEX—Naval term for a practice landing exercise.
LO—Loading officer.
LSD—Landing ship, dock.
LSM—Landing ship, medium.
LSMR—Landing ship, medium, rocket.
LST—Landing ship, tank.
LSTII—Landing ship, tank (casualty evacuation).
LSU—Landing ship, utility.
LSV—Landing ship, vehicle.
LVT—Landing vehicle, tracked.
LVT(A)—Landing vehicle, tracked, armored.
MSL—Mean sea level.
NATU—Naval amphibious training unit.
NGF—Naval gunfire.
NGFO—Naval gunfire officer.
NGLO—Naval gunfire liaison officer.
N. L. Ponton—Navy lightered ponton.
OTC—Officer in tactical command.
PT Boat—Patrol torpedo boat.
SACC—Supporting arms coordination center.
SAS—Ship-air-spot (net).
TAC—Tactical air command (net).
TACA—Tactical air coordinator.
TACC—Tactical air control center.
TACP—Tactical air control party.
TAD—Tactical air direction (net).
TADC—Tactical air direction center.
TAF—Tactical air force.
TAO—Tactical air observation (net).
TAR—Tactical air request (net).
TRANSDIV—Transport division.
TRANSGROUP—Transport group.

TRANSRON—Transport squadron.

TTU—Troop training unit (naval organization).

UDT—Underwater demolition team.

UP&T Table—Unit personnel and tonnage table.

VHF-(Radio)—Very high frequency.

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